This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

Usage guidelines

Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

+ *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.

+ *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.

+ *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.

+ *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

About Google Book Search

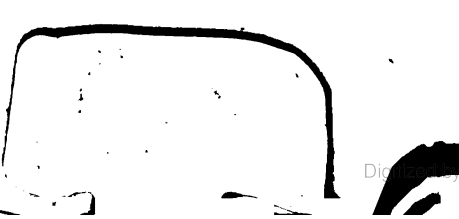
Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at `http://books.google.com/`

Educ 1l 5705.1820

HARVARD COLLEGE

SCIENCE CENTER
LIBRARY

FROM
The Publishers.



Digitized by Google

Digitized by Google

Digitized by Google

Digitized by Google

Digitized by Google

Save all advs

THE TECHNOLOGY REVIEW

VOLUME VIII.

1906

Committee on Publication

JAMES PHINNEY MUNROE, '82
WALTER BRADLEE SNOW, '82
ARTHUR AMOS NOYES, '86
EDWARD GALBRAITH THOMAS, '87
WALTER HUMPHREYS, '97

BOSTON
PUBLISHED BY THE ASSOCIATION OF CLASS SECRETARIES
OF THE
MASSACHUSETTS INSTITUTE OF TECHNOLOGY

Digitized by Google

COPYRIGHT, 1906
BY THE
ASSOCIATION OF CLASS SECRETARIES

PRESS OF GEO. H. ELLIS CO., 272 CONGRESS STREET, BOSTON

Digitized by Google

Digitized by Google

Digitized by Google

Split Caps

THE TECHNOLOGY REVIEW

A QVARTERLY MAGAZINE RELATING TO THE MASSACHVSETTS INSTITVTE OF TECHNOLOGY

$R = \frac{5730}{D}$

PVBLISHED AT
83 NEWBVRY STREET BOSTON BY THE
ASSOCIATION OF CLASS SECRETARIES

Copyright, 1906, by Association of Class Secretaries, M. I. T.

Entered as second-class mail matter at
Boston Post-office.

Price 35 cents

Digitized by Google

THE MASSACHUSETTS INSTITUTE OF TECHNOLOGY

BOSTON, MASS.

THE MASSACHUSETTS INSTITUTE OF TECHNOLOGY aims to give thorough instruction in *Civil, Mechanical, Chemical, Mining, Electrical,* and *Sanitary Engineering;* in *Chemistry, Architecture, Physics, Biology, Geology,* and *Naval Architecture.* The Graduate School of Engineering Research offers courses leading to the degree of Doctor of Engineering.

To be admitted to the Institute, the applicant must have attained the age of seventeen years, and must pass examinations in algebra, plane and solid geometry, physics, history of the United States (or ancient history), English, French, and German. Preparation in some one of a series of elective subjects is also required. A division of these examinations between different examination periods is allowed. In general, a faithful student who has passed creditably through a good high school, having two years' study of French and German, should be able to pass the Institute examinations.

Graduates of colleges, and in general all applicants presenting certificates representing work done at other colleges, are excused from the usual entrance examinations and from any subjects already satisfactorily completed. Records of the College Entrance Examination Board, which holds examinations at many points throughout the country and in Europe, are also accepted for admission to the Institute.

Instruction is given by means of lectures and recitations, in connection with appropriate work in the laboratory, drawing-room, or field. To this end extensive laboratories of chemistry, physics, biology, mining, mechanical engineering, applied mechanics, and the mechanic arts, have been thoroughly equipped, and unusual opportunities for field-work and for the examination of existing structures and industries have been secured. So far as is practicable, instruction is given personally to small sections rather than by lectures to large bodies of students.

The regular courses are of four years' duration, and lead to the degree of Bachelor of Science. In most courses the work may also be distributed over five years by students who prefer to do so. Special students are admitted to work for which they are qualified; and advanced degrees are given for resident study subsequent to graduation.

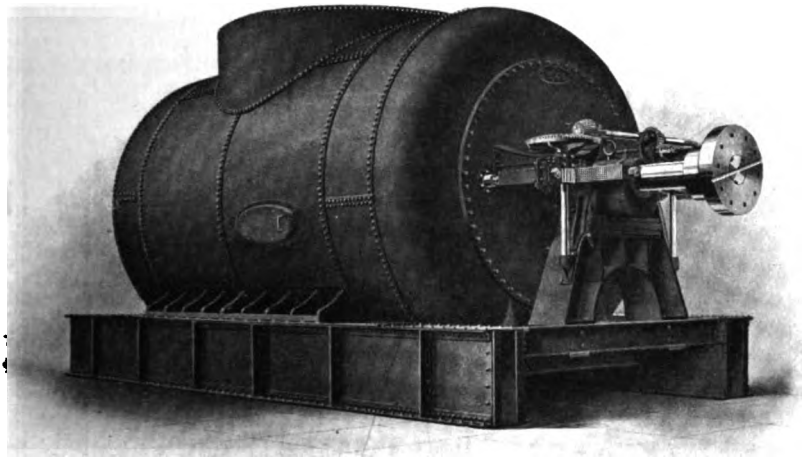
The tuition fee, not including breakage in the laboratories, is $250 a year. In addition, $30 to $35 per year is required for books and drawing materials.

For catalogues and information, address

H. W. TYLER, *Secretary,*
491 Boylston Street, Boston.

Digitized by Google

TURBINE WATER WHEELS



Pair 5,000 h.p. Cylinder Gate Wheels, 80 feet head. 35,000 h.p. of these wheels are operating generators in the Spier Falls plant of the Hudson River Water Power Company, Glens Falls, N.Y.

We make a specialty of designing wheels to suit all conditions

S. MORGAN SMITH COMPANY,

BOSTON OFFICE 176 Federal Street — **YORK, PENNSYLVANIA**

THE ATLANTIC WORKS

INCORPORATED 1853

BORDER, MAVERICK, AND NEW STREETS, EAST BOSTON

BUILDERS OF

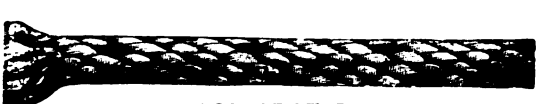
Stationary... **BOILERS** and Marine

Plate and Sheet Iron Work of Every Description

STEAMSHIPS, TOW BOATS, STEAM YACHTS AND HEAVY MACHINERY

SAMSON CORD

Warranted perfect braid and smooth finish.
Cotton, Linen, Italian Hemp. All sizes and colors.

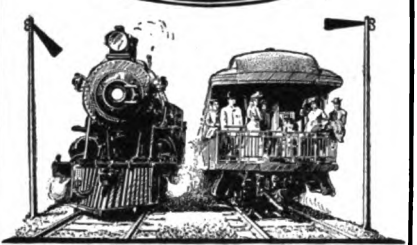


SAMSON SPOT CORD

SAMSON CORDAGE WORKS .·. *BOSTON, MASS.*

Digitized by Google

CHICAGO & ALTON RAILWAY



"COMING AND GOING"
"THE ONLY WAY"
BETWEEN
CHICAGO
ST. LOUIS
KANSAS CITY
AND PEORIA

GEO. J. CHARLTON, Gen. Pass. Agent, Chicago, Ill.

Hub Engraving Company

Photo-Engravings
Half-Tones
Relief Plates

173 Summer St.,
BOSTON

A. D. LITTLE, '85

H. J. SKINNER, '99
H. S. MORK, '99
F. A. OLMSTED, '03
C. F. SAMMET, '03
T. C. PINKERTON, '05

Arthur D. Little

Chemical Expert and Engineer

93 Broad Street
BOSTON

CHEMICAL CONTROL OF MATERIAL AND PROCESSES

SAMUEL CABOT

MANUFACTURING CHEMIST

Creosote Shingle Stains, Sheathing and Deafening
"Quilt," Lampblack, Brick Preservative,
Conservo Wood Preservative, Etc.

141 Milk Street Boston, Mass.

GEO. H. BARRUS, '74

EXPERT AND
CONSULTING STEAM ENGINEER

Pemberton Building
12 Pemberton Square
BOSTON

Digitized by Google

STEPHEN CHILD, '88

LANDSCAPE ARCHITECT
AND
CONSULTING ENGINEER

2A Park Street, Boston, Mass.

Member Am. Soc. Civ. Engrs. Telephone

E. H. GOWING, '77

ENGINEER

12-22 Pemberton Square, Boston, Mass.

HARVEY CHASE & COMPANY

PUBLIC ACCOUNTANTS AND AUDITORS

RECENT EXAMINATIONS:
City of Boston, City of Chicago, State of Ohio, City of Minneapolis, Boston Gas Companies, Manufacturing Companies, Savings Banks, Trust Companies, etc.

27 State Street, Boston
Telephone, 3660 Main

GILES TAINTOR

COUNSELLOR AT LAW

101 MILK STREET

BOSTON

E. K. TURNER, '70

CIVIL ENGINEER

53 State Street, Boston, Mass.

ELLEN H. RICHARDS, '73

SANITARY ANALYSES OF WATER SUPPLIES

Consulting Chemist on Food and Dietaries

Massachusetts Institute of Technology,
BOSTON

F. B. KNAPP, S.B., '79

PRINCIPAL OF

POWDER POINT SCHOOL, DUXBURY, MASS.

Prepares for Massachusetts Institute of Technology, College, or Business

---

F. W. DEAN CHARLES T. MAIN, '76

DEAN & MAIN

MILL ENGINEERS AND ARCHITECTS

Exchange Building 53 State Street
Boston, Mass.

LEONARD METCALF, '92

M. AM. SOC. C. E.

14 Beacon Street, Boston, Mass.

Telephone, HAYMARKET 1982-3

Water Supply, Sewerage, and Other Engineering Works

ROBERT H. RICHARDS, '68

PROFESSOR OF MINING ENGINEERING AND METALLURGY

Massachusetts Institute of Technology, Boston, Mass.

Consulting Engineer on Ore Dressing

Digitized by Google

STONE & WEBSTER

ELECTRICAL EXPERTS AND ENGINEERS

BOSTON, MASS.

CHARLES A. STONE, '88
EDWIN S. WEBSTER, '88
RUSSELL ROBB, '88

MERRIMAC CHEMICAL CO.

75 AND 77 BROAD STREET, : : BOSTON, MASS.

MANUFACTURERS OF

Oil Vitriol	Sulphate of Alumina	Bisulphite of Soda
Muriatic Acid	Chloride of Alumina	Hyposulphite of Soda
Nitric Acid	Hydrate of Aluminum	Tin Crystals, etc.
Acetic Acid	Acetate of Alumina	Aqua Ammonia
Acetate of Soda	Glauber's Salt	Wood Alcohol
Alum	Sulphate of Soda	Colors

S. W. WILDER, Treasurer — HENRY HOWARD, Vice-President

DAVIS FOUNDRY COMPANY

LAWRENCE, MASS.

JAMES F. LANIGAN, Proprietor

Structural Iron Work of all descriptions

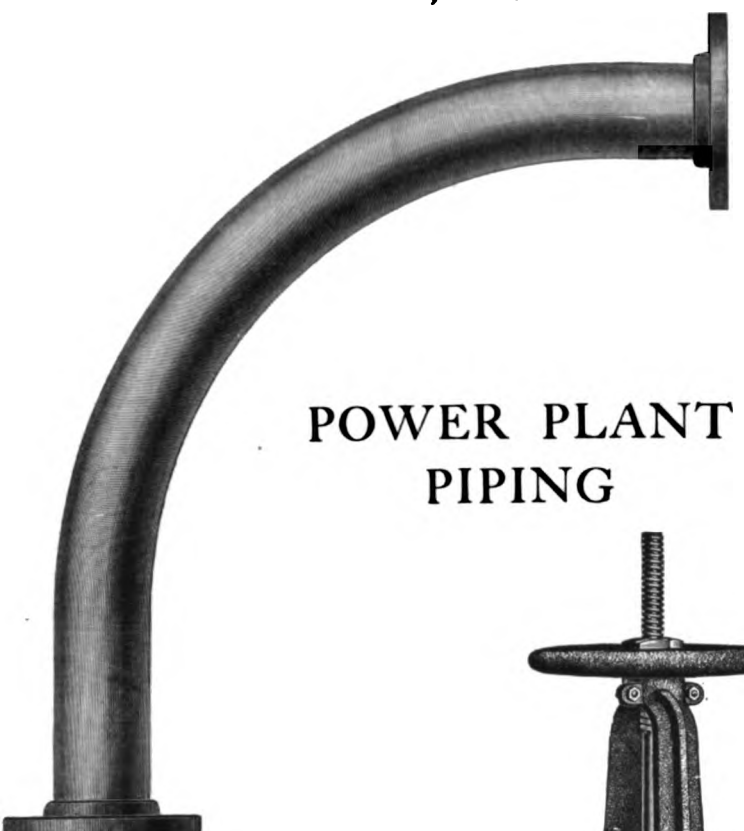
Machinery and Architectural Casting

JAMES F. LANIGAN, JR., '94, Agent

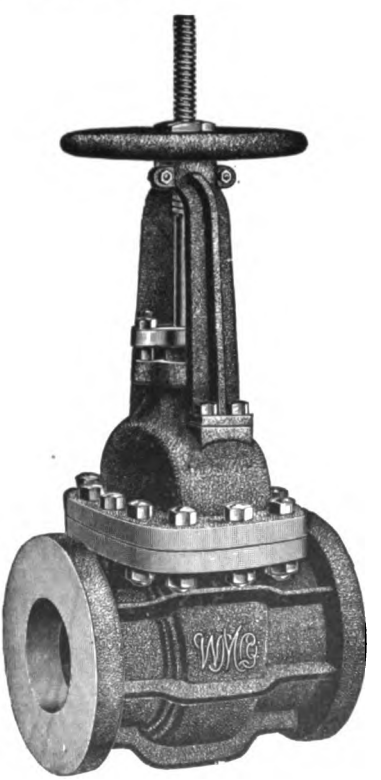
Digitized by Google

WALWORTH
MANUFACTURING COMPANY

BOSTON, U.S.A.



POWER PLANT
PIPING



Extra Heavy
Valves and Fitting for
High Pressure Plants.

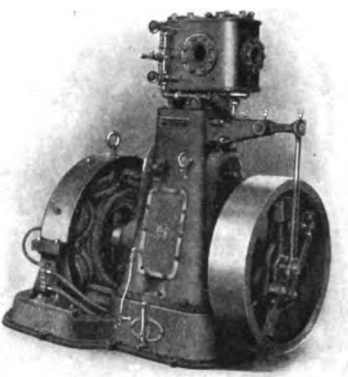
Walmanco.
Pipe Joints.

GENERAL OFFICES

132 Federal Street

Digitized by Google

STURTEVANT GENERATING SETS



With High-grade Vertical Engines are built in a line of fourteen sizes, from three to fifty K.W. We build twenty-two other sizes in Horizontal and Vertical Compound types.

Bulletin 63 tells you all about them..

B. F. STURTEVANT CO.
BOSTON, MASS.
General Office and Works
HYDE PARK, MASS.
NEW YORK CHICAGO
PHILADELPHIA LONDON

Designers and Builders of Heating, Ventilating, Drying, and Mechanical Draft Apparatus; Fans, Blowers, and Exhausters; Steam Engines, Electric Motors, and Generating Sets; Fuel Economizers; Forges, Exhaust Heads, Steam Traps, etc. 488

SIMPLEX

RUBBER INSULATED
HIGH or LOW TENSION
WIRES & CABLES
AERIAL SUBMARINE
UNDERGROUND

EVERETT MORSS President CHAS. A. MORSS Treasurer
HENRY A. MORSS Vice Pres. J. H. MASON Gen. M'g't.

THE SIMPLEX ELECTRICAL CO
110 STATE STREET BOSTON

Digitized by Google

The Technology Review

Volume VIII. January, 1906 Number 1

Contents

FRONTISPIECE: The Seal of the Institute

THE ADMINISTRATION OF PRESIDENT PRITCHETT

THE USES OF FOREIGN LANGUAGES . . . John Bigelow, Jr.

SOME ASPECTS OF ALUMNI REPRESENTATION H. W. Tyler

ANNUAL MEETING OF THE ALUMNI ASSOCIATION OF THE M. I. T.

THE INSTITUTE:

Corporation Notes.—Publications.—Graduate Scholars.—Lewis and Clark Exposition.—General Notes.—Department Notes.—Extracts from Report of the President and Treasurer.

THE UNDERGRADUATES:

Institute Committee.—Convocations.—Professional Societies.—The Classes.—Clubs and Societies.—Y. M. C. A.—Tech Union.—Athletics.—The Fall Handicap Meet.—Golf Tournament.—Field Day.—Field Day Dinner.—Cross Country Race.—M. I. T. Fencing Association.

THE GRADUATES:

List of Nominees for Corporation.—Association of Class Secretaries.—The Washington Society of the M. I. T.—The M. I. T. Club of Cincinnati.—The Technology Club of New Bedford.—The Technology Club of Hartford, Conn.—The Association of Women of the M I. T.—The Technology Club.—News from the Classes.

Digitized by Google

ASSOCIATION OF CLASS SECRETARIES

OF THE

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

FREDERIC H. FAY, *Secretary* CHARLES F. READ, *Assistant Secretary*

Class Secretaries

ROBERT HALLOWELL RICHARDS, '68
HOWARD ADAMS CARSON . . '69
CHARLES ROBERT CROSS . . . '70
EDWARD WARREN ROLLINS . . '71
CALVIN FRANK ALLEN . . . '72
SAMUEL EVERETT TINKHAM . '73
CHARLES FRENCH READ . . . '74
EDWARD A. W. HAMMATT . . '75
JOHN RIPLEY FREEMAN . . . '76
RICHARD AUGUSTUS HALE . . '77
LINWOOD ORVILLE TOWNE . . '78
HARRY HUGHES CAMPBELL . . '79
GEORGE HUNT BARTON . . . '80
FRANK ELDEN CAME . . . . '81
WALTER BRADLEE SNOW . . '82
HARVEY STUART CHASE . . . '83
WILLIAM LEWIS PUFFER . . . '84
ISAAC WHITE LITCHFIELD . . '85
ARTHUR GRAHAM ROBBINS . . '86
EDWARD GALBRAITH THOMAS, '87
WILLIAM GAGE SNOW . . . '88
FRANK ARTHUR LAWS . . . '89
GEORGE L. GILMORE . . . . '90
HOWARD CARLETON FORBES . '91
WILLIAM ATKINSON JOHNSTON, '92
FREDERIC HAROLD FAY . . . '93
SAMUEL CATE PRESCOTT . . . '94
WILLIAM THOMAS HALL . . '95
EDWARD STACEY MANSFIELD . '96
JOHN ARTHUR COLLINS, JR. . '97
CHAS.-EDWARD AMORY WINSLOW, '98
MILES STANDISH SHERRILL . . '99
RICHARD WASTCOAT . . . . '00
EDWARD BROWNE BELCHER . . '01
CHARLES WETMORE KELLOGG, JR., '02
WALTER HOLBROOK ADAMS . '03
CURRIER LANG . . . . . '04
ROBERT HOWARD WM. LORD, '05
STEWART CLARK COEY . . . '06
FRANK SANDERSON MCGREGOR, '07
HARRY WEBB, ... '08
WALTER WELLINGTON KING . '09

MAXWELL ALANSON COE, President, Institute Committee

HARRY WALTER TYLER . . . '84
Secretary of the Faculty

EVERETT MORSS . . . . . '85
President of the Alumni Association

ARTHUR GRAHAM ROBBINS . . '86
Secretary of the Alumni Association

GUY LOWELL . . . . . '94
President of the Technology Club

ALFRED E. ZAPF . . . . . '95
Secretary, North-western Association M.I.T.

HAROLD O. BOSWORTH . . . '02
Secretary, Rocky Mountain Technology Club

CECIL B. ANNETT . . . . '02
Secretary, Technology Club of New York

HENRY SOUTHER . . . . . '87
Chairman Exec. Com., Technology Club of the Connecticut Valley

JERE. R. DANIELL . . . . . '97
Secretary, Technology Club of Philadelphia

RAYMOND H. DANFORTH . . '98
Secretary, Pittsburg Technology Association

HENRY A. BOYD . . . . . '79
Secretary, Tech Society, Western New York

FREDERICK W. SWANTON . . '90
Secretary, Washington Society of the M.I.T.

ACHILLES H. PUGH, JR. . . . '97
Secretary, The Cincinnati Club of the M.I.T.

JOHN A. COLLINS, JR. . . . '97
Secretary, The Technology Club of the Merrimack Valley

LATIMER W. BALLOU . . . '95
Secretary, The Technology Club of Rhode Island

CHARLES F. WING, JR., . . . '99
Secretary, The Technology Club of New Bedford

CHARLES H. STRATTON . . . '00
Secretary, Annapolis Society of M.I.T.

REDFIELD PROCTOR, Jr. . . . '02
Secretary, Vermont Technology Association

GEORGE W. BAKER . . . . '92
Secretary, Technology Club of Hartford, Conn.

Committee on Publication

JAMES PHINNEY MUNROE, '82
WALTER BRADLEE SNOW, '82
ARTHUR AMOS NOYES, '86
WALTER HUMPHREYS, '97

Digitized by Google

Digitized by Google

THE SEAL OF THE MASSACHUSETTS INSTITUTE OF TECHNOLOGY

Photographed from a cast of the Great Seal used upon the Diplomas of Graduation

So many variants of the Institute Seal are current that it seems desirable to put on record the authoritative form

Digitized by Google

HARVARD COLLEGE LIBRARY
FEB 15 1906
CAMBRIDGE, MASS.
Gift

The Technology Review

VOL. VIII. JANUARY, 1906 No. 1.

THE ADMINISTRATION OF PRESIDENT PRITCHETT

Dr. Pritchett's announcement of his resignation from the office of President of the Massachusetts Institute of Technology is made soon after he has completed five years of service. His administration has been full of striking and significant events in the history of the Institute, which have been recorded in detail in the pages of the REVIEW, and are familiar to its readers. A survey of them at this time must therefore be chiefly a grouping of generally known facts.

Reference may first be made to the material development of the Institute. During the five years ending on September 30 its total property has increased from $3,339,000 to $3,699,000. Of this increase of $360,000, $169,000 has been invested in new temporary buildings, and $113,000 in the land in Brookline. During the same period current expenses have increased from $356,000 to $482,000,—an increase slightly more rapid than that in the total number of students. Special mention should be made of the bequest of $50,000 by the late Augustus Lowell, which, with an equal sum previously contributed by him, created a Teachers' Fund of $100,000. Largely from members of his family have come the gifts which made possible the erection of the building

Digitized by Google

containing the Lowell Laboratory of Electrical Engineering. From the Arioch Wentworth estate has come $100,000, and in 1901 the State Legislature renewed for ten years its annual grant of $25,000. Mr. Samuel Cabot has given land in Brookline, and contributions have been received toward a fund for the erection of dormitories. In 1901 the alumni completed the sum of $100,000 for the Walker Memorial Building, and in 1904 raised towards an Income Fund $210,000, to be paid in five annual instalments. Numerous gifts for the carrying on of work in research have also been made.

The buildings erected during this time have been of a temporary character. Early in 1902 announcement was made that work was soon to be begun on two buildings: one for the Walker Memorial, the other for the Departments of Physics and Electrical Engineering. Owing, however, to the opening of the question of moving the Institute, the one-story building put up in the summer of 1902 was designed to serve merely temporary needs. The same is true of the building called Engineering C, which was built in the summer of 1903, and the gymnasium on Garrison Street, which has just been completed. In 1902 the Institute purchased in Brookline land adjoining that given by Mr. Cabot, the two pieces amounting to eleven or twelve acres. Part of this land is devoted to athletic purposes, and is known as Technology Field. During this period, in spite of the increase of the tuition fee from $200 to $250, the Institute has suffered from inadequate financial resources,—a condition of things that has seriously affected the purchase of new equipment and the payment of adequate salaries.

In all that concerns the life and general welfare of the students at the Institute Dr. Pritchett has taken a most earnest and active interest. The ideal which the proposed

Digitized by Google

Walker Memorial was to embody appealed to him at once, and in his first report to the Corporation, urging that the fund be completed immediately, he said, "There is no other need at this moment which in my mind is so pressing, and it seems to me absolutely necessary to dispose of this question before taking up others which will so soon demand our attention." The hope of giving to the students extended opportunities for social development naturally led to the plan of removal to a site where dormitory life would be possible,—a project which necessitated the postponement of the Walker Memorial. The Tech Union, however, was established as a sort of social centre, and there the "Kommers" and other gatherings have been held. Dr. Pritchett has made considerable study of the conditions under which students live in Boston, and has caused to be appointed a Medical Adviser for them to consult. The students also have the advantage of a free bed, offered by the authorities of the Massachusetts General Hospital. In athletics the President has brought about the substitution of the sports of Field Day for the dangerous cane rush, and at his suggestion the students voted to abolish "inter-collegiate" football. Thanks largely to his efforts, athletics at the Institute is in a healthy state. In order to bring Tech students into touch with the world at large, and to inspire in them a desire for a broad outlook upon life, Dr. Pritchett has established the meetings called "Convocations." At these gatherings of the entire body of students in Huntington Hall short addresses are made by men who typify various phases of American activity. Among the speakers have been President Eliot of Harvard and President Hadley of Yale, Dr. Lyman Abbott, Dr. Booker T. Washington, Rev. Henry Van Dyke, President Lucius Tuttle, Colonel Thomas Wentworth Higginson, Dr. W. S. Rainsford, Major Henry L. Higginson,

Digitized by Google

Dr. Edward Everett Hale, Mr. Jacob Riis, and the Rt. Rev. Charles H. Brent. Dr. Pritchett himself has frequently addressed the students, welcoming them to the Institute, encouraging high ideals, and discussing with them various phases of student life. The establishment of Tech House as a means whereby students may get an insight into the social and industrial conditions of the poor in large cities is another indication of Dr. Pritchett's aim to give Institute men breadth of view.

The promotion of research work and advanced instruction at the Institute has been constantly sought by President Pritchett, and during his administration much progress has been made in this direction. The most important steps taken have been the establishment of the Research Laboratory of Physical Chemistry and of the Sanitary Laboratory and Sewage Experiment Station. Both of these have been made possible by generous contributions from friends of the Institute. The Laboratory of Physical Chemistry now has a staff of eight Research Associates and Assistants who devote themselves exclusively to research work, and has attracted many graduate students, seven of whom are now working for the degree of Doctor of Philosophy. The Sanitary Research Laboratory also has a staff of salaried research workers engaged in the investigation of sewage. From both laboratories valuable contributions to the sciences to which they are devoted have already been published. In this connection reference should be made to the Eclipse Expedition sent by the Institute to Sumatra in 1901, under the direction of Professor Burton. President Pritchett has sought to develop graduate instruction and research upon the technical side through the establishment of a Graduate School of Engineering Research, and by offering the degree of Doctor of Engineering. Finally, mention

Digitized by Google

should be made of his encouragement of scholarship and research on the part of the instructing staff of the Institute. Many of its members have pursued advanced studies abroad, and promotions have been made in recognition of scientific accomplishment.

The main educational events of this period are the adoption by the Faculty of an advance of entrance requirements by the addition of a second modern language in 1903 and of physics in 1905, the introduction of additional general studies in the third year, the establishment of a new course in Electro-chemistry in 1900 and of a course for Naval Constructors in 1901, and the substitution by the Executive Committee of the Corporation of an elective course in General Science for the course in General Studies. The main innovation in connection with the administrative organization, made upon the initiative of the President, was the appointment of a Dean to co-operate with the President in matters relating to the general welfare of students. The importance of the office was instantly recognized, and its value not only to the Freshmen, for whose benefit it was especially designed, but also to men of the upper classes, has been great.

During President Pritchett's administration the Faculty has increased in number from fifty-four to seventy-one. The number of resignations has been fifteen, of deaths three, of new appointments nine, of promotions twenty-six. Appointments of heads of departments include Professor Talbot in Chemistry, Professor Duncan and, more recently, Professor Clifford (acting) in Electrical Engineering, Professor Jaggar in Geology, Professor Bigelow in Modern Languages, Professor Tyler in Mathematics, Professor Burton in Mechanical Drawing and Descriptive Geometry, and Professor Wheeler in Military Science.

Digitized by Google

The most important of President Pritchett's policies are connected with the general questions which he has presented to Corporation, Faculty, and Alumni, and which have been earnestly considered by all three bodies, and also by the public at large. Of these questions three are especially noteworthy,—that of the abolition of the Course in General Studies, that of removal to a surburban site, and that of alliance with Harvard University. All of these matters have been discussed at length in this REVIEW, and the attitude of President Pritchett towards them has been fully presented. A mere mention of them here is therefore sufficient. As is well known, the first of these questions was decided affirmatively by the vote of the Executive Committee in 1904; and the last two were settled by the decree of the Supreme Court made in September, 1905.

Partly from the discussion of these policies and partly from other causes, such as the Tech Reunion, the Rogers Commemoration, the raising of the Technology Fund, and the giving to the Alumni direct representation upon the Corporation,—a measure actively forwarded by the President,—there has been created a keen interest in Institute affairs on the part of Corporation, Alumni, and friends, which may perhaps be considered the most significant and auspicious circumstance of Dr. Pritchett's administration. There has also been developed a lively sense of the separate dignity and influence and yet of the interdependence of the bodies of Corporation, Faculty, and Alumni. The events by which this result has been reached and the controversies attending them need not be repeated here. The end itself is one at which every true friend of the Institute may heartily rejoice.

Digitized by Google

THE USES OF FOREIGN LANGUAGES

"Don't graduate your men with any less familiarity with Continental languages than in my day. It is constantly growing more necessary." (*Graduate Massachusetts Institute of Technology, Class '93.*)

The subject of this paper will be considered with special reference, in the order indicated, to the following classes of persons: first, students; second, professional men; and, third, men of leisure.

I.

A student at the Institute of Technology may take a fancy to make some original experiment or investigation, and be asked by his professor, "Do you know what has already been done in this line?" He cannot pretend that he does if he has not consulted the latest foreign publications on the subject. In such a case he is likely to be referred to them, and told to post himself on their contents. In the courses in mining engineering and metallurgy, in electrical engineering, and in biology he will be required to write English translations or abstracts of matter found in French or German books or periodicals. In architecture he will find the French writings more concise and lucid than the English. The professor of architectural design or composition lectures to the students in French. His comments on their work, his criticisms and suggestions, are habitually given to them in that language. It is most important that they understand these promptings of his master spirit. They are as mother's milk to their suckling geniuses. In the library of the department of architecture one sees students reading English books, with much better French books all around them, simply because of their ignorance of French. In the department of chemistry students are called upon to read and translate German texts in the class-room, and to prepare written reports on the bibliography of particular subjects assigned to them. This work is about 75 per

Digitized by Google

cent. in German, about 10 per cent. in French, and the rest in English. Students of geology are required to recite from German text-books in crystallography and petrography. There is not a course in which the proper preparation of a graduating thesis will not, or may not, require a student to consult French or German works.

A Technology graduate in civil engineering of the class of 1890 writes to Professor Swain:—

> It may be well, perhaps, to remind you that my graduation thesis called for considerable use of Darcy's "Écoulement en Tuyaux," and that during my graduate work at the Institute I was using Ruhlmann's "Hydromechanik" and Grashof's "Theorie der Elasticität und Festigkeit" with you, and Fraenkel's "Bakterienkunde" with Professor Sedgwick, and therefore had more use of both languages, perhaps, than falls to the average man before leaving the Institute.

This case is perhaps not so exceptional as the writer seems to think. Another graduate writes:—

> . . . The work I took up for my thesis at Tech required me to compare standard works in French, German, and English, and such translations of the former into English as claimed to be exactly given, including mathematical formulæ and their constants, which would have been impossible without a fair working knowledge of both these languages.

I have thus far considered only the work of undergraduates in four-year courses. There is a five-year and a six-year course in architecture, upon which the attendance is increasing. In these courses the use of French in the lecture-room, drawing-room, and reading-room is indispensable; and a study of both French and German may be considered as essential to the breadth and maturity of mind necessary to the profitable pursuit of these higher studies. A student who wishes to pursue the study of mathematics beyond the stage reached by the undergraduate, or beyond calculus, as some of the students in physics and naval architecture have done, will need a knowledge of both French and German. Graduate students in chemistry have to use a German text-book and German books of reference. A student of biology or of political economy will find

Digitized by Google

a knowledge of German indispensable to the use of an extensive and eminently reliable literature on these subjects.

A graduate in civil engineering (class of '88) writes as follows:—

I have used French and German almost daily in the last ten years, chiefly in the perusal or study of technical literature. Probably over 95 per cent. of my reading has been in German.

II.

One may be an efficient engineer without a knowledge of any modern language. But one cannot be in the front rank of the profession. One should not expect to make a great name in any field of science or technology without the command of either French or German. The Faculty of the Institute does not know, the students themselves cannot know, which students are going to be in the front rank. The Faculty cannot but assume that all are trying to get there. The studies must, therefore, be directed to that end. Referring to the work of students, I mentioned certain uses of modern languages which may be carried into their work as professional men. A few may now be considered as pertaining particularly to their professional work. To keep up with the discoveries in the properties of metals, one must, as in the study of the higher mathematics, read French or German, perhaps both. To keep abreast of the leaders in art, one must know French. I use the word "art" in its broadest sense, to include what is commonly called taste or æsthetics. Even such utilities as dams, aqueducts, trestle bridges, factories, warehouses, etc., need not be altogether devoid of taste. There is almost always more than one material and more than one form suited to a projected structure. Within the limits of a proposed or warrantable cost there is ordinarily room for the exercise of judgment in the choice of material and in its disposition, so as to create an impression of harmony in the work itself and in its relation to its environment and use.

A striking feature in the present life of our people is their growing appreciation of beauty and aversion to ugliness. We are not satis-

Digitized by Google

fied with taste and beauty in dress and furniture, in studios, art schools, and museums. We want them more and more in our domestic architecture, in our hotels, in our conveyances, in our public buildings and monuments, in our parks, squares, and bridges. The public is beginning to insist upon good taste even at some cost. It is disposed to favor an engineer who distinguishes himself by a faculty for combining beauty with utility. To be such an engineer, one must be something of an artist as well as an engineer. There is a general belief that the most intense artistic life in the world is found in Paris; that, to grow artistic, one should, if one possibly can, live and study in Paris. To do this to any substantial profit, one must know French.

In perhaps most of the schools or departments of civil engineering in the United States there is little or no use made of modern languages, except occasionally in the preparation of a thesis. This is due to the degree to which the artistic side of an engineer's vocation is subordinated to the utilitarian. Practically, all artistic work is left to collaboration by engineers and architects. A student who wants to be able, however, to design and build a bridge like the Pont Alexandre in Paris must study architectural design and composition as well as engineering; and, to do this, he must or should know French.

Translations, be it moreover observed, are not usually published simultaneously with the originals, nor for months or years thereafter. This gives the connoisseur of foreign languages a decided advantage over his less accomplished competitor. Besides, scientific works are quite commonly translated by persons who have no scientific education. They are consequently liable to be marred by errors, which, though from a linguistic standpoint insignificant, may cause a scientific reader much trouble.

The student may not know in advance which of the languages I have mentioned will prove the more useful to him. He chooses his own course at the Institute, but his work, when he graduates, may be determined by conditions over which he will have no control. A graduate in hydraulic engineering may have to accept a position on a railroad, in a bank, or in a merchant's office. Moreover, the rela-

Digitized by Google

tive advancement of the arts and sciences in different countries is subject to change. One cannot tell from the conditions of to-day what the relative importance of French and German in the various departments of engineering will be ten or twenty years hence. A graduate has told me that his experience led him to send back to the Institute for a complete set of the text-books that he had used as a student, and to review them thoroughly.

The facilities for travel are constantly improving. Each class that graduates from the Institute stands a better chance than the one before it of going abroad or meeting interesting foreigners in our own country. Such occasions for using a foreign language may be few, but the advantage of being able to improve them may be incalculable. Graduates of the Institute write on this point as follows:—

I make almost as little use of French as of a pistol, but, like the latter, when I do need it, I need it badly. (Class '79.)

I obtained my first position because of my knowledge of French and German, and I have recently been offered an important position in Europe on account of my ability to speak the two languages. (Class '96.)

Shortly after leaving the Institute, a book in German on air pumps was loaned me. One of the principles laid down in that book has been of value to me,—of such value, I think, that I would be willing to take the course [in German] for that alone. (Class '88.)

In Central and South America, in China, Africa, and other parts of the world, where people do not commonly speak English, Americans are either kept out of business or forced out, or are outstripped, by Germans and other Europeans, who have mastered the language of the country. Graduates testify very clearly and forcibly to this fact.

I have been constantly thrown among engineers of many different nationalities,—English, Russian, French, German, and Italian. My observation has been that an engineer educated at the Institute can hold his own in competition with any foreign engineer in any technical work. As to languages, he cannot compete. The Russians and Germans, especially, can speak invariably three often four languages, and, as a rule, all foreign engineers speak at least two. (Civil Engineering, Class '91.)

Digitized by Google

The increasing foreign trade of the United States will necessarily demand a wider knowledge of such studies [modern languages], and not the least of the causes contributing to the decline of British foreign commerce is the fact that the English people are behind their Continental neighbors in general knowledge of languages other than their own. The consular reports fully prove this statement, and the subject is now [1901] being raised in Parliament. (Mechanical Engineering, Class '91.)

The patent laws of the principal countries of Continental Europe require persons taking out patents therein to work their inventions in the territories of such countries within definite periods from the dates of their patents. These periods vary from one year in Belgium to five years in Italy. The period in France is two years, in Germany three. Any patent that is not worked in accordance with these requirements is forfeited. As a consequence, a number of American agencies are established in Paris, Berlin, and other cities of Europe, engaged in manufacturing American goods with French, German, and other foreign labor. These laborers do not, as a class, talk English. To have the intercourse with them that is necessary to their proper management, one must know their language. It is necessary, too, in every American agency abroad to have some one who can interpret and draw up a contract in the language of the country. For an indefinite time to come the Dean of the Institute of Technology may receive applications like the one embodied in the following letter addressed to him under date of April 13, 1905:—

Dear Sir,—We believe we are correct in addressing you for the names of men who may be qualified to fill a position we now have open. We are anxious to have a young man with some sort of an electrical engineering education, who at the same time is thoroughly conversant with the German language. We wish to send this man to Berlin to look after the details of the business that we, as representatives of the Gesellschaft für drahtlose Telegraphie, now have in Berlin.

This will give a good man an opportunity to work into the wireless telegraph business at the place where the best apparatus is being manufactured, and in the course of time he might be able to be one of our wireless engineers in this country.

Digitized by Google

A thorough speaking, reading, and writing knowledge of the German language is absolutely essential.

The ratio of annual immigration to the annual increase of population of the United States has increased, with numerous and extensive fluctuations, from 32.24 per cent. in 1871, to 58.90 per cent. in 1904,* and the fecundity of foreign-born women is considerably greater than that of native born.†

The foreign-born population of the United States, exclusive of

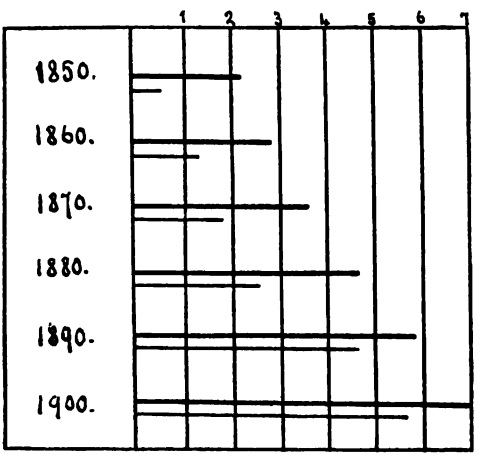


Table I.

——— Foreign-born population of the United States, excepting British and Chinese; millions; increase (1850 to 1900) 833 per cent.

▬▬▬ Native-born, British, and Chinese population of the United States; tens of millions; increase (1850 to 1900) 220 per cent.

Compiled and drawn from tables and diagrams in the Twelfth Census of the United States.

China and Great Britain, or consisting of natives of Germany, Norway, Sweden, Denmark, Italy, Russia, Poland, Austria, Bohemia, and Hungary, from 1850 to 1900, together with the mixed remaining population of the United States during the same period, is shown in Table I. This is the best statistical index that I have

* Statistical Abstract of the United States, published by the Department of Commerce and Labor, twenty-seventh number, page 2.

† Bulletin No. 22, Bureau of the Census Department of Commerce and Labor.

Digitized by Google

been able to procure of the use made, or that might be made, of foreign languages within the United States. With respect to the use of foreign languages by Americans abroad, the data that I have been able to obtain are given in Table II. With special re-

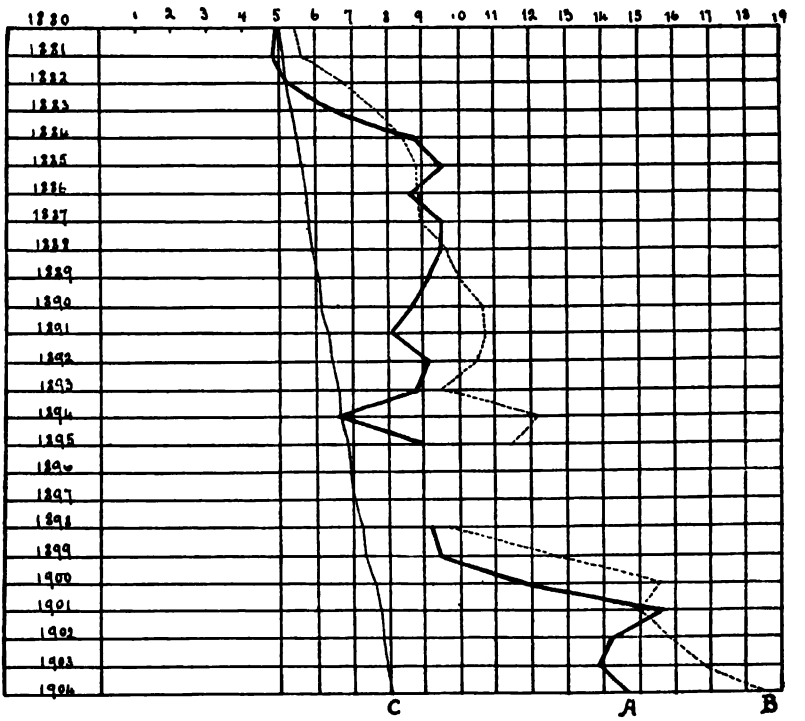


Table II.

A. United States citizens returning annually from foreign countries; tens of thousands; increase (1880 to 1904) 194 per cent.
B. Cabin passengers departing annually from seaports of the United States for foreign countries, etc.; tens of thousands; increase (1880 to 1904) 237 per cent.
C. Population of the United States; tens of millions; increase (1880 to 1904) 63 per cent.

Compiled and drawn from tables in the Statistical Abstract of the United States published by the Department of Commerce and Labor, twenty-seventh number, pages 2, 22, 428, and 430.

spect to their use in commercial intercourse, I compiled Table III., showing the value of the combined exports and imports and the population of the United States, year by year, from 1895 to 1904. Table I. shows the foreign-born population to be gaining on the

Digitized by Google

remainder: the notable gain since 1880 may be taken to date from the Spanish-American War. Table II. shows that travel abroad is increasing more rapidly than the population. Table III. goes to show that our commercial intercourse with the non-British portion

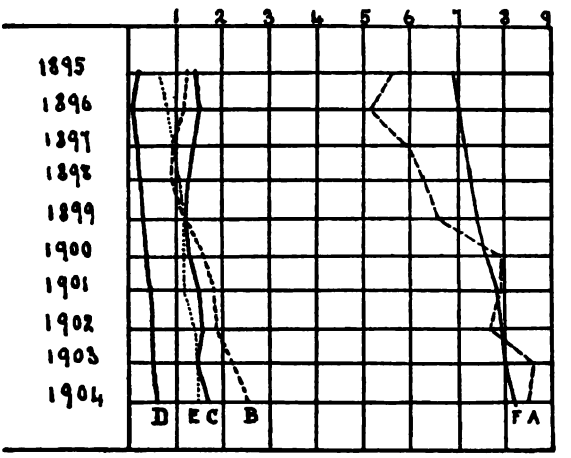


Table III.

Merchandise imported into and exported from the United States by grand divisions of the world, exclusive of English-speaking countries; and population of the United States, 1895 to 1904. Merchandise in hundreds of millions of dollars, population of the United States in tens of millions of persons.

A. Europe, excluding United Kingdom of Great Britain; increase (1895 to 1904) 51 per cent.
B. North America, excluding British North America, British West Indies, and Bermuda; including Mexico, other Central American States, Cuba, Porto Rico, and other non-British West Indies; increase (1895 to 1904) 88 per cent.
C. South America; increase (1895 to 1904) 17 per cent.
D. Oceania, excluding British Oceania and British Australasia; including Philippine Islands and Hawaii; increase (1895 to 1904) 229 per cent.
E. Asia, excluding British East Indies; increase (1895 to 1904) 101 per cent.
F. Population of United States; increase (1895 to 1904) 19 per cent.

Compiled and drawn from tables in the Statistical Abstract of the United States, published by the Department of Commerce and Labor, twenty-seventh number, pages 2, 97 *et seq.*, 642, and 643.

of every great division of the world, with one exception, has in the last ten years increased in greater proportion than our population. The one exception is South America. The disadvantage of South America, as compared with Central America, may be in part due to its greater distance from the United States, but is attributable in no inconsiderable degree to its less torrid climate, and conse-

Digitized by Google

quently greater European immigration, together with the superiority of the average European to the average American as a linguist. Our expansion to a world power since the Spanish-American War has been accompanied by marvellous changes in our army and navy, in our commerce and in our diplomacy. Is it not to be followed by a corresponding change in our qualifications for intercourse with the people of South America? Can these people believe us to be sincerely interested in their welfare, and not fear our reassertion and modernization of the Monroe doctrine; can we obtain satisfactory results from Pan-American congresses, as long as the youth attending our schools and colleges are commonly given or offered instruction in French and German, and not in Spanish?

It is desirable that Institute graduates appreciate the possible advantage to them of a knowledge of Spanish. There is no other language the importance of which to Americans is increasing so rapidly; and who can doubt that this increase will be accelerated by the construction of the Panama Canal? Graduates write to Professor Swain:—

> Business, such as an engineer would likely take up, is reaching out, and the field which is being reached is our new territory, South America, South Africa, etc. Our hardest opposition is German, for in this discussion we need not consider England, as we know the language. Now, to meet this opposition, we must be able to find out what our trade wants, and what our competitor has to sell, his claims for it, and a fair idea of his prices. The best equipped man for this work is the one who can work out his opponents' circulars, and also talk or read the language of his trade. My conclusion would be that a man who can talk Spanish and translate German and French has the best fitting possible for this business. (Class '81.)
>
> I have used Spanish continually since graduation, and my knowledge of it is worth to me about $50 a month to-day. That is, in this country [Cuba], other things being equal, the engineer who knows Spanish is worth $50 a month more than the engineer without such knowledge. (Class '99.)

To succeed in a profession, something is necessary besides professional attainments. In all affairs of the world the personal factor has to be reckoned with. Engineers will find it in men under them, in men over them, and in men on a level with them,—in

Digitized by Google

workmen, or employees; in clients, or employers; and in contractors. They will find it also, when they look for it there, in themselves. Formulæ for atoms and molecules, for heat, light, and electricity, for flow of fluids and strength of materials, will not avail them in the solution of a personal equation. That problem is not reducible to figures or amenable to the operations of arithmetic or algebra. Other things being equal, the man of widest and most varied knowledge, the most accomplished man, the man of the greatest culture, has an advantage over others in making friends and securing business. I do not mean to express approval or disapproval of that form of aid and comfort in the battle of life which is commonly called "pull." But I do say that no one trying to make his way in the world can afford to despise an advantage in personality, to refuse the credential of culture. A graduate whom I met at one of this year's class reunions remarked, in tones of genuine regret, that he had observed a number of cases in which Technology men had lost opportunities of getting positions because of their inability to express themselves in a way to convince a business manager of their abilities. He attributed this defect to the lack at the Institute of dormitories and other arrangements conducive to social intercourse, and the consequently secluded lives that many of the students lead.

The artistic and the manual training of a Technologist conspire to develop in him a reliance upon the eye and hand, accompanied by a corresponding neglect or disuse of the ear and voice. The habit of expressing himself in lines, forms, and colors, in drawings and paintings, in models and other structures, conduces to excessive objectivity, indisposing him to expression without use of the hand or to apprehension without use of the eye. Unless checked or judiciously counteracted, this habit develops into a defect or disability. Its victim finds it hard to keep his thoughts upon a subject without fixing his eyes upon a corresponding object. In the course of the most lucid expositions, the most logical deductions, the most graceful, lifelike descriptions, he will find himself wandering in his thoughts or turning his eyes this way and that in search of a chart, a plan, a drawing, or some other visible form or suggestion

Digitized by Google

of the speaker's theme. Are not reading and conversation, as practised in a course in modern languages, worthy of consideration as a counteraction to this tendency? To quote again from letters of Institute graduates:—

In the first rounds of an engineer's life his ability to write and speak clear, forceful English may not be of much moment, but the instant that that engineer reaches the point in his career where he must negotiate business with other people, either on his own account or that of people for whom he may be working, his command of English will, to a marked extent, determine the amount of business he can get. (Class '88.)

. . . The possession of other languages tends to improve a man's command of his own:—

"Wer fremde Sprache nicht kennt
Weiss doch nicht seine eigene."—*Goethe.* (Class '86.)

. . . The study of these two languages [French and German] has given me a much better knowledge of English, and hence aided me in giving exactness and accuracy to all written work, has helped me to arrange data, to form conclusions, and make reports, in a more logical manner. It is certain that there is no better method to learn the correct and most economical use of our own language than to study a foreign one. (Class '97.)

How common a thing it is to judge a professional man on personal impressions. Who has not done it? Good reader, have you not yourself some time chosen a dentist or a doctor because he seemed a good fellow, and would not hurt you or let you suffer, without a thought as to his diploma or his standing among men of his profession? I have heard of a middle-aged lady who discharged a physician because he would not hold her hand when he sat by her bed.

III.

Let us now consider the value of foreign languages in the last period of life, or after one has retired from business. I admit that for some men there is no such period, and that for others this period is short, but what I have to say with regard to it will apply to one's leisure at any time of life. I know the industrious habits of Tech-

Digitized by Google

nology men. I know that they work hard at the Institute and in their professions, but neither as students nor as professional men can they work all the time. I assume that they divide their days on an average into eight hours of work, eight of recreation, and eight of sleep; that they thus spend during their active lives as much, and during their entire lives more, time in recreation than they do in work. What is the average student at the Institute doing about this? Does he know that more careers are spoiled, more lives wrecked, in periods of leisure than in periods of work? Does he realize the value in this regard of true culture, of a taste and faculty for intellectual recreation? I recognize the good there is in out-door games and sports. During the period of active life physical recreation should, as a rule, have precedence over intellectual. But one cannot employ one's whole leisure in physical recreation. A Technology graduate may be living in the tropics, where he will find the climate a bar to much physical recreation. He may be the only college graduate in a mining or surveying camp in one of our Western States, or in the Sierra Madres or the Rocky Mountains. Such social intercourse as offers itself may be uninteresting or unprofitable, not to say pernicious or demoralizing. He may escape it, he may get away from the thoughts and feelings of the day, and find a pleasant, restful substitute therefor in a book, even in a professional one. But he will be surer to get out of himself, to secure the needed change of thought and feeling, if his reading be a foreign work in a foreign tongue.

In the conduct of education as in the production of art one may work to suit one's self, to realize one's ideals, or to suit the public, to supply a demand. One cannot wisely hold to unalterable ideals with absolute disregard of patronage, nor, on the other hand, have no ideals, and change one's theory and practice with every change of public thought, every fluctuation of public favor. On the question of modern languages the Institute is not merely abreast of the times, it is well ahead of them. The time which it allows to modern languages, including preparation, is nine hours a week for two years. This is as much as could be reasonably expected. But this time is not the maximum that could be profitably devoted to

Digitized by Google

them: it is the minimum in which a student can be expected to perfect himself in the essential elements of the languages studied. Within a few years the time devoted to the study of modern languages has been diminished. This has been done, however, not by lowering the standard in that study, but by requiring more for admission, by relegating more of the preparation to secondary schools; and the time thus gained has been assigned, for the greater part, to English, the most important of all the culture studies.

Perhaps the best criterion of the usefulness of modern languages to an engineer would be the estimate formed by it of a considerable number of practising engineers. About four years ago Professor Swain addressed to all living graduates in the courses in civil and mechanical engineering a copy of the following letter:—

My dear Mr.——, I shall be very much obliged to you if you will, for my own information, give me an immediate answer to the following questions, as I am desirous of forming an opinion as to the value to our graduates of the instruction which they receive in French and German.

1. To what extent in your professional work since leaving the Institute have you had occasion to make use of French or German?

2. Have you found your command of those languages sufficient for your purpose?

3. Please give your general opinion as to the value to you, either in a professional or an unprofessional way, of the instruction which you received in those subjects at the Institute.

4. Do you think the time devoted at the Institute to these subjects could have been expended in a more profitable manner?

5. Would you be in favor of making these subjects optional for students in your course?

Answers were received from every class to that of 1900, inclusive. These answers, speaking for thirty-three classes and 772 members, have been placed by Professor Swain at my disposal. I present a few extracts therefrom, giving such as are, on the whole, favorable to the study of modern languages and such as are not, in alternation with each other:—

I think that practically all the best, all the most advanced work in the theory of structures is being done in German countries, and that it is most

Digitized by Google

desirable, if not necessary, for any one who would keep up in this subject to read the German literature as it appears. (Class '89.)

English and American engineering have progressed so rapidly within late years that it is my opinion that an American can find almost any subject equally, if not more, thoroughly covered in his native language than he will in either French or German. (Class '90.)

In my professional work relating to water supply and sewage purification I have had to refer continually to French and German publications. (Class '83.)

French and German are about as serviceable to me as a pair of ice skates would be to a native resident of Borneo. (Class '92.)

I have had many occasions to use German and French in my professional work, especially in investigations of foreign mills and machinery, and also in reading foreign text-books. . . . I would favor German first, French second, Spanish third. . . . I feel very strongly that the studies named in the fourth answer (German, French, Spanish) should be given in each of the engineering courses, and for a successful man, who expects to get profitably through life, I would much rather omit the Calculus even than any of the above. (Class '68.)

I think that the time that I devoted to the study of these two languages [French and German] at the Institute could have been spent in a much more profitable manner. It could have been more profitably spent in sleep. (Class '90.)

. . . in the West, where I have lived practically ever since graduation, the larger part of our best mechanics are Germans, and, although many of them are born in this country, they use their own language among themselves, and, unless you can talk German, it's a waste of time trying to do much business with them, and it's useless trying to handle a force of German workmen unless you understand what they are saying and can talk back. (Class '74.)

. . . I live in a town where four-fifths of the population are German, and do not consider that a knowledge of German even under these circumstances would be of any benefit to me from a professional, business, or social standpoint. (Class '81.)

I have found little or practically no use for French or German in my work. I might have said the same thing of chemistry, calculus, descriptive geometry, and various other subjects, of unquestioned importance. I do not think any one should be permitted to graduate from the Institute who has not a good general knowledge of languages, literature, history, etc., whether he may ever need it to get his living or not. (Class '90.)

Digitized by Google

To form a satisfactory estimate of the *pros* and *cons* presented by these letters, it is necessary to consider them collectively in a form that will admit of at least numerical comparison:—

Questions.	*Answers.*	
1. To what extent in your professional work since leaving the Institute have you had occasion to make use of French or German?	Much	109
	Little	215
	None	314
	Total	638
2. Have you found your command of those languages sufficient for your purpose?	Yes	191
	No	198
	Total	389
3. Please give me your general opinion as to the value to you, either in a professional or in an unprofessional way, of the instruction which you have received in these subjects at the Institute.	Favorable	363
	Unfavorable	127
	Total	490
4. Do you think the time devoted at the Institute to these subjects could have been expended in a more profitable manner?	Yes	183
	No	321
	Total	504
5. Would you be in favor of making these subjects optional for students in civil engineering?	Yes	154
	No	380
	Total	534
6. Which language, French or German, have you had the more use for?	French	39
	German	49
	Total	88
7. Which have you made the more use of in scientific reading and business correspondence?	French	22
	German	25
	Total	47
8. Which do you consider the more useful to the average American engineer?	French	5
	German	24
	Total	29
9. Which were you the more proficient in when you graduated from the Institute?	French	69
	German	4
	Total	73

Digitized by Google

Some of the answers were not sufficiently clear and positive for tabulation. The questions were not all understood. These figures therefore, are not to be taken exactly, or as bases for fine calculations. Considering them, however, as rough approximations, they seem to point to the following conclusions:—

1. About three-quarters of the graduates make little or no professional use of either French or German.

2. Of those who make use of either language, professionally or unprofessionally, about half find their command of the language sufficient, and about half find it insufficient, for their purposes.

3. About two-thirds of the graduates are favorably impressed with the instruction in French and German imparted at the Institute, do not think that the time given to receiving such instruction could be better expended, and are opposed to making the study of these languages optional.

4. Somewhat more than half of the graduates find German a more useful language than French.*

5. With very few exceptions the graduates are more proficient in French than in German.

As a corollary, it may be added that about one-third of those who expressly approve of the instruction in French and German have themselves had little or no professional use for these languages. They thus signally attest their appreciation of language study as an element of general culture.

From a dollar-and-cents point of view neither French nor German has been of the slightest value to me, but I should be heartily ashamed of myself if both of these languages had not formed a part of my education. (Class '88.)

The experiences and observations of graduates seem to warrant the belief that an increasing number of them find the two most useful foreign languages to be German and Spanish, the former for reading and the latter for speaking.

It goes without saying that for speaking purposes any language

* In Bulgaria, Servia, Roumania, Turkey, and Russia, German is now more widely used than French, which once held the first rank. (Class '94.)

Digitized by Google

may be the most important. Under these conditions it would seem wise to consider the practicability of making a change in the programme of studies in modern languages at the Institute. Instead of requiring all students to take French and German, to require them to take two languages, one of which shall be prescribed and the other elective. Thus students of architecture and naval architecture might be required to take French and one other modern language, and other students, German and one other modern language.

The principal uses of foreign languages at the Institute and in a graduate's after-life may be stated in order of importance as follows: 1. Reading; 2. Writing; 3. Speaking; 4. Culture.

A graduate should, on leaving the Institute, be able to read a French scientific book with the aid of a French technical dictionary; and a French newspaper, or ordinary French, with occasional references to a French lexicon, but without the use, in either case, of a French and English dictionary. He should be correspondingly proficient in the reading of German, and of Spanish, if he has taken that language.

He should be able to write, in each of the foreign languages that he has studied, a letter, contract, or other paper which an educated foreigner would readily understand; to write effectively through the medium of a foreign amanuensis.

He should be able to talk these foreign languages intelligibly and with a tolerable accent.

In the courses at the Institute English is avoided, and a foreign language used as much as possible. Reading aloud in English is being gradually abandoned. When English has to be used, it is to be done in writing.

The course in French commences with a drill in the elementary sounds of the language, which are displayed on large charts in each of the French section rooms.

Students are marked on pronunciation separately from grammar, etc. Record marks are means between marks for pronunciation and marks for other work. Marks for pronunciation are determined by the following scale, based upon the one in general use at the In-

Digitized by Google

stitute.* The term "audible" means that can be heard and recognized as the language used at a distance of about twenty feet; and the term "tolerable," that can be listened to without pain by one who knows the language.

C	Audible, intelligible, tolerable, fluent, expressive.	
P÷	Audible, intelligible, tolerable, fluent.	Inexpressive.
P	Audible, intelligible, tolerable.	Halting.
L	Audible, intelligible.	Intolerable.
F	Audible.	Unintelligible.
FF		Inaudible.

Conversation is taught not only for its possible usefulness in itself, but also as a means to the comprehension and appreciation of the written language, as a factor in fixing the language in the student's memory, and as an element of culture. It forms a part of every language course, and commences at the first lesson. The course in conversation as a separate subject is abolished. Most of the conversation between the pupils and instructors is in the language taught. Instructors at their weekly meetings, and in their intercourse with one another in the rooms of the department, habitually talk a foreign language.

In technical or scientific reading every effort is made to have the students understand the technology or science that they are reading about.†

In the translation of measures foreign terms are converted into American: meters into yards; kilometers, leagues, and German miles into statute miles; kilogrammes into pounds; marks, francs, and centimes into dollars and cents; degrees Centigrade into degrees Fahrenheit, and *vice versa*.

From the foundation of the Institute general, or culture, studies have formed part of its curriculum. As the Institute developed and the needs and wants of its alumni came to be better known, the num-

* C (passed with credit), P (passed), L (passed with low standing), F (failed to pass), FF (failed completely).

† I think students object to reading fables and trash. What they want is a scientific education, and all compulsory reading should lead to that end, and professors should be qualified to teach science along with language. (Graduate Massachusetts Institute of Technology, Class of '90.)

Digitized by Google

ber and variety of such studies was increased. To-day there is no other technical school in the country at which so much that is not technical is required of its students. In one sense, and a very proper one, all studies minister to culture, but those to which I refer as culture studies in the Institute courses are the following:—

History of the United States, History of Europe since 1815, Business Law, Political Economy, English Literature, and Composition, French and German, and the third-year options not named in this list.*

How much culture can be derived from these studies depends, needless to say, upon the attitude of the student towards them, the spirit in which they are taken up and pursued. The majority of the students do not profit from them as much as they might, because they are not interested in them, they do not appreciate their importance.

What is needed for the development of the culture side, so to speak, of the Institute, is not an increase in the courses, nor in the time allowed them, so much as a stimulation, an awakening, of the culture spirit among the students. That subject I will not enter upon here, except to remark that the practice inaugurated by President Pritchett, of having occasional convocations of students and instructors at which they are addressed by men of commanding ability and attainment on interesting topics of the day, is a potent influence in the direction indicated. However the students may apply themselves, the culture that they acquire from the studies named is little enough; and yet who will say that the high standing of the Massachusetts Institute of Technology among technical schools is not largely due to the advantage possessed by its graduates in their general knowledge, or culture?

I very much doubt [says a graduate] whether my knowledge of French and German has aided my progress in a professional way to the slightest degree, or whether it has ever enabled me to make a better design or a more complete investigation, or added a dollar to my income, but at the same time I value the feeling of satisfaction that has come from

* These optional studies are all non-professional. Every regular student is required to take one for one year.

Digitized by Google

possessing these incomplete accomplishments. It must be remembered that one hour spent on a modern language does not take one hour away from opportunity to study engineering. Change brings rest, and the way that I have found it possible to average so many hours per day and per year of hard work has been by carefully planning my daily tasks so as to bring change of course of thought at intervals of each few hours. (Class '76.)

The culture studies make a small showing in a student's Tabular View, but, if he estimate their value rightly, he will apply himself to them with all the more earnestness, with an ardor inversely proportional to the time that he is permitted to devote to them.

JOHN BIGELOW, JR.

Digitized by Google

SOME ASPECTS OF ALUMNI REPRESENTATION

The recent action of the Corporation of the Institute inaugurating a system of alumni representation marks an epoch in our history. It is opportune for the alumni who are to exercise by their franchise an important influence on the future of the school to review their past relations to it, and to consider certain aspects of its organization and administration.

The Alumni Association was organized in 1876, "to further the well-being of the Institute and its graduates by increasing the interest of members in the school and in each other." With some degree of self-confidence this was declared to be "the final step in the plan of the founder of the Institute." Addressing Professor Richards as President of the Association, President Rogers said: "I hail with pleasure the organization of the society of which you have been chosen President, believing that it cannot fail to promote the educational and scientific objects for which the Institute was established." Two years later it was voted "that a permanent Committee on the School be appointed from the alumni, whose duty shall be to keep itself informed as to the courses of instruction, management, and policy of the School, and to render a report of the same at each annual meeting." The same year (1878) the Corporation, through the Executive Committee of the Association, invited a nomination for election to the Corporation. Mr. Howard A. Carson, '69, was nominated and duly elected, becoming also a member of the important Corporation Committee on the School.

In 1885 the Association undertook to establish a scholarship of not less than $5,000 in memory of President Rogers. Within ten years this fund reached $10,000. The successful effort to secure a fund of $100,000 for a Walker Memorial is recent history, and the important collateral activity of alumni agencies: the Technology Club, the Association of Class Secretaries, the TECHNOLOGY REVIEW, the Advisory Council on Athletics, the outside local societies, need only be mentioned.

Digitized by Google

Reviewing the activities of the Alumni Association, it appears that, while both Corporation and alumni have worked for a common end, their relations with each other have not been especially close, and that the privilege of nomination extended to the few alumni of 1878 was not deemed a precedent to be systematically followed. Nor has the number of alumni elected to Corporation membership through the ordinary channels been notably large. Of the forty-four life members of the present Corporation,—not including the three representatives of the Commonwealth,—eight are Institute graduates, four others are former students. Of the seven members of the Executive Committee, one has always been an alumnus.

Some of the causes of these conditions are not far to seek. The Massachusetts Institute of Technology is the product of somewhat remarkable conditions. It is a State institution, yet the State contributes but a small fraction to its support. Unlike most other educational foundations of similar size, it cannot claim priority of interest either as the oldest institution of higher learning in its region or as the representative of the cultural needs and ideals of a particular sect or class. Nor did it originate in any superabundance of riches seeking a useful outlet.

There was a great public need of a new kind of education, a need imperfectly met by any existing agencies. There was a man of inspired genius who undertook to meet that need. He satisfied himself and others that this could be fully accomplished only by the establishment of a new and independent school. The great problem of financial support remained to be worked out. It has been worked out,—gradually and sometimes even painfully,—as the remarkable development of the school has so abundantly vindicated his foresight and judgment. Until long after President Rogers's death the Corporation consisted largely of men who had shared or directly inherited the enthusiasm and the ideals of the founder and his associates,—such men as Cummings, Endicott, Lowell, and Forbes. Between their passing and the possible accession of alumni equal to so great responsibilities, a period of transition must intervene,—a period in which the choice of members of the Corporation would be relatively difficult. We are nearing the end of this transition

Digitized by Google

period, and the recent action of the Corporation is a recognition that the sons of the Massachusetts Institute of Technology have, as a body, come of age, that they are henceforth entitled to a share in the family councils.

A transition, to be real progress, must be gradual. Wise conservatism and, still more, continuity of policy are essential to the welfare of an institution which invites and depends on public confidence. The adoption by the Corporation of a comprehensive plan for alumni representation, while obviously an expression of general confidence of the Corporation in the alumni, has been preceded by a prolonged period of storm and stress. The first, and not the least, service which almuni representatives can render is to prove in their own persons that the alumni seek only the welfare of the school, and that they are anxious to co-operate most heartily with all those—in the Corporation or not—who desire its independent development along the broad lines in which its past and present success has been accomplished.

What, then, are the tasks and the responsibilities awaiting the men who will have the honorable distinction of election to the Corporation as alumni representatives? In answering such a question, it is an easy and tempting error to outline a programme of real or apparent improvements hopelessly beyond the possibility of present accomplishment. For efficiency of development it is essential to avoid alike the unprogressive acceptance of present conditions as the best possible, and the fruitless dissipation of energy involved in making a simultaneous advance with inadequate resources along the whole line. Before progress can be made in any direction, it is also indispensable to gain a clear and complete understanding of present conditions. What, then, is the Institute of Technology to-day, what are in particular its principles of organization, its needs, and its resources?

The organization and administration of an educational institution must be determined with reference to the accomplishment of certain purposes, the realization of certain ideals. They are means, and only means, to this end. The best organization will be as simple as possible, and will have such flexibility as to adapt itself to changing conditions.

Digitized by Google

It would go beyond the limits of the present paper to attempt a restatement of the characteristic ideals of the Institute of Technology. Originating with President Rogers, they have been gradually but surely worked out by his associates and successors. Always achievement has led to a new advance of the ideal, continually approached, but never reached. To-day we may say that the general purpose of the Institute of Technology is to include in its domain the broadest and highest education in science, with special but not exclusive reference to its useful applications, and to include also whatever else can now be considered essential for the liberal education of men entering the scientific professions.

The Institute must then be so organized and administered not only that it shall here and now turn out the best educated graduates, but so also that it shall steadily and surely develop as a living organism into its highest future as a scientific university. The speed of this progress in the development of a permanent institution is of small importance in comparison with its certainty of direction.

Any system of organization must recognize that the Institute's primary work is teaching. This requires a well-selected and well-organized body of teachers, working under favorable conditions. With this must be judiciously combined attention to the physical and social education of students and the increasing development of scientific investigation. All of these involve expense with no apparent limit. Provision is thus necessary for the appointment and organization of a Faculty and instructing staff, for land, buildings, and equipment, and for attracting public and private financial support. Some of the activities involved are purely educational, some are purely financial, many combine both elements. It is vitally important that there should be a wise distribution of responsibility for these activities among Corporation, Faculty, and administrative officers. That the Corporation should have control and responsibility in legal and financial matters, and that educational questions will often be determined thereby, will be generally agreed. That questions of educational policy should be settled by the Faculty subject only to financial limitations—a considerable qualification—may be maintained with equal confidence. A Faculty

Digitized by Google

which does not merit this responsibility has been unwisely selected or has been permitted to deteriorate, and should be improved by appointments or removals. A Faculy that is denied a responsibility of which it is worthy suffers discredit, with consequent harm to the institution.

In the countless questions which are both educational and financial, and thus concern both the Faculty and the Corporation, adequate provision for some form of conference and exchange of views is much to be desired. With small institutions the active trustees, together with the President, may be well acquainted with the needs and conditions of all professors, or at any rate of all departments. With increased size and complexity this becomes increasingly difficult. There are obvious objections to dependence on more or less accidental contact between individual members of the two bodies, and the natural remedy would appear to lie in the constitution of a joint committee of Corporation and Faculty, or in formal provision for the presentation of Faculty matters to the Corporation by specially delegated committees. A good mutual understanding between Corporation and Faculty will naturally be facilitated by the presence of alumni in the former body.

It is an important and difficult task of the Corporation to appoint new teachers, and, as time passes, to provide, so far as needful, for the retirement of the old. In a large institution, efficiency of instruction depends greatly on co-operation and unity of purpose in the instructing staff,—on good "team work." Whatever the advantages for advertisement of "all-star" casts on the stage, systematically concerted effort is indispensable for successful technological education. The participation of men, however eminent or able, is only a doubtful auxiliary unless and until they become closely and sympathetically associated with the Faculty of the institution. The efficiency of that body for teaching purposes is more than proportional to the number and the individual skill of its members. Just as the primary function of the Institute is teaching, so the primary qualification for valuable service in its Faculty is interest in and aptitude for teaching. The necessity of high character and attainments and the importance of scientific promise and practical

Digitized by Google

experience need not here be emphasized. The man thus qualified will be attracted to the Institute staff not mainly by present or possible financial rewards, but by the opportunities for congenial intellectual activity, for shaping the development of successive classes of students, for association with scientific men, and for a responsible share in the educational evolution of the school. A fair financial return is essential, in order to keep the profession open to men without means, and in order to maintain some degree of esteem on the part of a public addicted to the use of the dollars-and-cents scale; but the professor is rarely willing to be a seeker of wealth. He needs equipment, responsibility, and freedom; and the greatest of these is freedom,— freedom to teach the truth as he sees it, freedom individually from such excessive pressure as shall paralyze productivity, freedom collectively to shape and direct the educational policy of the school toward the accomplishment of its ideals, which he must have made his own. If these are denied or restricted, his enthusiasm and joy in his calling will gradually decline, and his power for good will be diminished. The accession of strong men will be hindered or prevented by the preference of the best men for institutions or callings offering greater freedom.

The Faculty of the institution is the body charged with the responsibility of its primary function,—instruction; but it is much more. As a body, it has the clearest conceptions of the ideals of the institution; that is, of that which makes it something more than a mere educational mill. It has received these ideals from its predecessors, it must hand them down advanced towards perfection. Unlike the trustees or the alumni, it devotes continuous attention to the work and welfare of the school. If its members have been wisely selected, they will steer a mean course between complacent conservatism and restless innovation. They will cultivate close relations with the graduates as the surest means of preserving due adaptation of their work to the present and the anticipated developments of professional practice, not forgetting, on the one hand, the possible advantage of reversing the relation of teachers and taught, on the other hand the permanence of the great scientific principles underlying changing applications.

Digitized by Google

It is the province of the Faculty and its members not merely to give instruction, not merely to keep in touch with professional progress: they must prosecute and direct scientific investigation. They must also supervise in some measure the physical and social education of the students. All these are indispensable to the maximum efficiency of education. Taken together, they constitute the educational policy of the school.

The physical and social welfare of students and the development of their *esprit de corps* have received increasing attention in recent years, as the orderly progressive development of a weaker member of the organism. The development, like any other, has its due limits, and the pendulum should not be permitted to swing too far. Much has yet to be accomplished for physical welfare with the inauguration of the Walker Memorial, so admirably supplemented by Mr. Cilley's munificent bequest. It would be a poor service to the institution to permit such an over-development of athletic or social diversions as should impair our high standards of work in fundamental subjects.

The importance and value of the development of scientific investigation can scarcely be overestimated. It is an essential and large part of our ideal programme, without which the highest standards of teaching itself will not be attained. Here, again, our progress has been consistent and continuous. With increasing resources and increased release of highly trained teachers from excess of undergraduate instruction, progress in this direction will be steadily maintained.

Departmental organization needs also to keep pace with development in other lines. Our present organization involves concentration of general responsibility and authority in the hands of the President and the Executive Committee of the Corporation, concentration of departmental responsibility and authority in the hands of an appointed head. Such centralization conduces to immediate efficiency, but sustained vigor demands a high degree of individual initiative and free discussion among all members of the Faculty or the departmental staff. The organization of separate departmental faculties would doubtless involve disadvantageous detachment, but

Digitized by Google

departmental conferences for discussion of matters of common interest are of value in counteracting any tendency to excessive concentration.

The Institute's material needs are many and urgent. It needs a great sum for the immediate purchase of a tract of land essential for its future development. Its buildings have long been overcrowded, and several of them must soon be replaced. Its equipment can be kept up to date only at heavy cost. Its salaries, long since declared to be "cruelly inadequate," have not advanced in proportion to the increased cost of living. It has much to do in the development of new work and in improving conditions of student life. The alumni representatives now to be elected will realize that the problem confronting them is by no means a merely financial one, that any successful effort to secure the necessary financial support, to say nothing of the wise and economical use of whatever is secured, must rest on a careful study of fundamental principles and conditions, some of which have been outlined in this paper. The Institute needs the harmonious co-operation of all its constituencies in the steady working out and the gradual perfecting of its educational programme. In this co-operation the share of the alumni representatives may well be both momentous and honorable.

H. W. Tyler, '84.

Digitized by Google

ANNUAL MEETING OF THE ALUMNI ASSOCIATION OF THE MASSACHUSETTS INSTITUTE OF TECHNOLOGY

BUSINESS MEETING

The annual meeting of the Alumni Association was held at Hotel Brunswick, Friday, December 29, at 5.30 P.M., President Locke in the chair.

Giles Taintor, Esq., of the class of '87, read a communication offering his services as counsel to the Alumni Association free of all expense to the Association. On motion of Professor Richards this courtesy was accepted by the Association.

The proposed changes in the Constitution, mailed to members of the Association on December 15, were, with verbal amendments, unanimously adopted.

The following is the text of the Constitution, including these changes:—

CONSTITUTION

ARTICLE I.

This Society shall be called the Alumni Association of the Massachusetts Institute of Technology. Its object shall be to further the well-being of the Institute by increasing the interest of members in the School and in each other.

ARTICLE II.

MEMBERSHIP

SECTION 1. The members of this Association may be regular, associate, or honorary.

SECT. 2. All graduates of the Institute shall be regular members.

SECT. 3. Any other member of a class which has graduated may become an associate member on election by the Executive Committee. Applications for associate membership shall be submitted in writing through the Secretary of the Association to a Membership Committee of seven, which shall meet at least twice a year, and names of persons recommended by the committee for

Digitized by Google

associate membership shall be reported to the Executive Committee, and the names of those elected by the Executive Committee shall be announced by the Secretary in connection with the call for the next ensuing meeting of the Association.

SECT. 4. Any other person, a present or former member of the Corporation or of the Faculty of the Institute, may be elected an honorary member by the Executive Committee of the Association.

SECT. 5. Associate members and honorary members shall be entitled to all the privileges of regular members, except those of voting and holding office.

SECT. 6. Only members of the Alumni Association who have not been connected with the Institute as students for at least five years shall be entitled to vote for term members of the Corporation.

ARTICLE III.

The officers of the Association shall be as follows: There shall be a President, two Vice-Presidents, and a Secretary, who, with four other members, shall constitute an Executive Committee. There shall be a Nominating Committee of six members, no one of whom shall be eligible for immediate re-election. The President and Secretary shall be elected for one year, the Vice-Presidents and members at large of the Executive Committee and the members of the Nominating Committee for two years. One Vice-President, two members at large of the Executive Committee, and three members of the Nominating Committee shall be elected annually. There shall also be such standing committees as may be designated by the Association.

ARTICLE IV.

The duties of the President, Vice-Presidents, and Secretary, shall be those commonly pertaining to their offices, and the Secretary shall, in addition, perform the duties of the Treasurer. The Executive Committee shall look to the general interests of the Association, and shall have power to fill all vacancies arising among its officers. The duties of the Nominating Committee shall be to present, through the Secretary, nominations for all offices to be filled and nominations for election to the Corporation.

ARTICLE V.

SECTION 1. The officers of the Association and candidates for election to the Corporation shall be chosen by letter ballot.

Digitized by Google

SECT. 2. Prior to October 20 the Nominating Committee shall transmit to the Secretary nominations for the offices to be filled and nominations for election to the Corporation. The nominations for election to the Corporation shall be at least five more in number than the places to be filled. The Secretary shall publish the nominations transmitted by the Nominating Committee in at least one daily paper in the city of Boston before October 25. Additional nominations for any office or for election to the Corporation, signed by at least thirty members of the Association entitled to vote for such nominees, shall be placed on the official ballot by the Secretary if received by him before November 15.

SECT. 3. Prior to November 20, letter ballots containing the names of all candidates shall be sent by the Secretary to all members of the Association entitled to vote as specified in Article II. In order to be counted, a ballot must be returned to the Secretary, enclosed in an envelope, indorsed with the voter's signature and class. The polls shall close December 20, and the Executive Committee shall thereupon canvass all ballots and announce the result. The candidates receiving the largest number of votes shall be deemed elected. Should there be a failure to elect on account of a tie, the tie shall be resolved by lot drawn by the Secretary.

SECT. 4. At least thirty days before the March meeting of the Corporation the Secretary shall send to the Nominating Committee of the Corporation the names of the candidates receiving the largest number of votes for election to the Corporation, in number two more than the number of vacancies.

SECT. 5. If any vacancy occurs among the term members of the Corporation through death, resignation, or otherwise, the Alumni Association shall choose for each vacancy two candidates in addition to those chosen according to the provisions of Section 3 of this article.

SECT. 6. The election of officers in the year 1905 shall be by ballot at the annual meeting. Three members of the Nominating Committee shall be elected for two years, and three members for one year. Prior to January 16, 1906, this Nominating Committee shall transmit to the Secretary eighteen nominations for election to the Corporation. Prior to January 22, letter ballots containing the names of all candidates shall be sent by the Secretary to all members of the Association entitled to vote as specified in Article II. In order to be counted, a ballot must be returned to the Secretary, enclosed in an envelope indorsed with the voter's signature and class. The polls shall close on Feb. 14, 1906, and the Executive Committee shall thereupon canvass all ballots and announce the result. Prior to February 17

Digitized by Google

the Secretary shall send to the Nominating Committee of the Corporation the names of the fourteen candidates receiving the largest number of votes. Should there be a failure to elect on account of a tie, the tie shall be resolved by lot drawn by the Secretary.

ARTICLE VI.

Every regular and associate member shall pay to the Treasurer the sum of one dollar annually, to defray contingent expenses. The payment of twenty dollars at one time shall constitute Life Membership.

ARTICLE VII.

The regular annual meetings of this Association shall be held in December or January of each year. In addition to these, special meetings may be called at any time by the Executive Committee, and shall be so called at the request, in writing, of ten members.

ARTICLE VIII.

This Constitution may be amended at any time by letter ballot. Proposed amendments, indorsed by the Executive Committee or by fifty members of the Association, shall be sent by the Secretary to all members of the Association, with notice of the time of closing the polls, which shall not be less than thirty days from the date upon which the proposed amendment is sent out. In order to be counted, a vote for or against the proposed amendment must be returned to the Secretary, enclosed in an envelope indorsed with the voter's signature and class. The Executive Committee shall thereupon canvass all ballots and announce the result. A proposed amendment receiving less than two-thirds of the total votes cast, or less than two hundred votes, shall be lost.

The printed report for 1905 was adopted.

Reports were received and placed on file, as follows: The Executive Committee; the Trustees of the Alumni Fund and of the Life Membership Fund; the Financial Report of the Secretary; the Committee on the School; the Committee on the William Barton Rogers Scholarship Fund; the Advisory Committee on Athletics.

The Secretary was authorized to print the Report of the Walker Memorial Committee, which was not presented at the meeting, owing to the absence of the chairman.

Digitized by Google

The Nominating Committee submitted the following names on a printed ballot: Everett Morss, '85, president; James B. Stanwood, '75, vice-president; Arthur G. Robbins, '86, secretary; Joseph H. Knight, '96, and James W. Rollins, Jr., '78, members of the Executive Committee; Joseph P. Gray, '77, member of Alumni Committee on the School; Walter Jenney, '77, and Henry P. Talbot, '85, members of Committee on Associate Membership; Frank H. Briggs, '81, member of Advisory Committee on Athletics.

The Secretary was authorized to cast one ballot for the officers named, all of whom were elected.

At the request of the Executive Committee the Nominating Committee submitted the following list of nominations for a Nominating Committee under Section 6 of Art. V. of the by-laws: Robert H. Richards ('68), Howard A. Carson ('69), Samuel E. Tinkham ('73), Francis H. Williams ('73), John R. Freeman ('76), Richard A. Hale ('77), James P. Munroe ('82), William B. Thurber ('89), Walter E. Piper ('94), J. Arnold Rockwell ('96).

From this list the Association elected by ballot three members of the Nominating Committee to serve for two years and three members to serve for one year.

The President appointed Giles Taintor and Frank W. Hodgdon tellers to distribute, receive, and count the ballots. The tellers reported that 96 ballots were cast.

Robert H. Richards	received	90	votes.
Howard A. Carson	"	84	"
James P. Munroe	"	77	"

And they were declared elected to serve for two years.

Francis H. Williams	received	73	votes.
Samuel E. Tinkham	"	70	"
J. Arnold Rockwell	"	54	"

And they were declared elected to serve one year.

The Secretary was authorized to print and mail to members the proceedings of the meeting.

ARTHUR G. ROBBINS, '86, *Secretary.*

Digitized by Google

REPORT OF THE EXECUTIVE COMMITTEE

The Executive Committee during the past year has held twelve regular meetings in addition to numerous conferences and sub-committee meetings.

The committee joined with representatives of the Association of Class Secretaries and other Technology organizations to form the Tech Reunion Committee, which planned the alumni meeting in June. The committee arranged for a reception tendered to the graduating class of 1905, Friday evening, June 2. The meeting was held in the Engineering Building, and included informal speeches by Dean A. E. Burton and Professor G. H. Barton, '80, and the presentation of appropriate gifts by the classes of '75, '85, and '95. The programme met with such favor that the committee recommends its substitution in the future for the more formal plan of previous gatherings.

The committee has devoted considerable thought to the relation of the Alumni Association to the Association of Class Secretaries and to the mode of election and privileges of associate members. No action is recommended at the present time, but both questions deserve serious attention in the immediate future. The committee also suggests that the officers for the ensuing year might well consider the feasibility of making the TECHNOLOGY REVIEW the official organ of the Association.

In accordance with the vote of the Association the following committee was appointed to nominate officers for 1906: Charles T. Main, '76; E. B. Homer, '85; Russell Robb, '88; E. C. Hultmann, '90; and S. C. Prescott, '94.

During the year the number of life members has increased from one hundred to one hundred and thirteen.

Upon recommendation of the Committee on Associate Membership six associate members have been elected since the last annual meeting, making the total number of associate members 172.

Early in April the Executive Committee received from the Corporation of the Institute a request for the opinion of the alumni with regard to a proposed agreement for alliance with Harvard University, a reply to be submitted on or before June 1. In the short time at its disposal the committee attempted to present various phases of the subject fairly by the circulation of two sets of documents, and by holding a public meeting on May 4. The expenses of the ballot, slightly in excess of $2,600, were approximately met by a grant of $2,000 from the Corporation and gifts of $225. The result of the canvass, with a digest of the chief reasons which appeared to influence the alumni in voting for or against the proposed agreement,

Digitized by Google

were reported to the Association at its meeting on June 2, and that report is herewith submitted for record as Appendix A.

The subsequent votes of the Corporation in relation to the proposed agreement are submitted in Appendix B.

Immediately after the October meeting of the Corporation the sub-committee of this Executive Committee, appointed last year to prepare a plan for alumni representation on the Corporation, was called into conference with the Committee on Nominations of that body. The sub-committee presented a plan involving the addition of elective term members, to be nominated by the alumni, and its provisions with certain changes of detail were approved. At the meeting of the Corporation on December 13 a change in the By-laws providing alumni representation was adopted, which is submitted herewith in Appendix C.*

In accordance with the vote of the Corporation the Executive Committee has prepared certain amendments to the Constitution of the Association, which were submitted in printed form on December 15.

The committee desires to express its gratification at the action of the Corporation, and to recommend the passage of the proposed amendments as submitted.

For the Executive Committee,

ARTHUR G. ROBBINS,
Secretary.

APPENDIX A

REPORT OF THE EXECUTIVE COMMITTEE ON THE ALUMNI CANVASS IN REGARD TO A PROPOSED AGREEMENT BETWEEN HARVARD UNIVERSITY AND THE MASSACHUSETTS INSTITUTE OF TECHNOLOGY, SUBMITTED JUNE 2, 1905

The Executive Committee of the Alumni Association received from the Corporation of the Institute early in April a request for the opinion of the alumni with regard to a proposed agreement for alliance with Harvard University, a reply to be submitted on or before June 1. In the short time at its disposal the committee has attempted to present various phases of the subject fairly by the circulation of two sets of documents and by holding a public meeting on May 4.

Ballots were sent out to all former students about May 18, and the polls were closed May 31.

The alumni have declared by a large majority against the proposed agreement. Of 1,809 votes cast by graduates, 458 favored and 1,351 opposed

* See Corporation Notes on p. 68.

Digitized by Google

it. Of 1,060 non-graduates voting, 376 favored the plan, and 684 opposed. The vote is approximately 3 to 1 among the graduates, and 2 to 1 among the non-graduates.

From an analysis of the letters, over 500 in number, sent in by the former students with their ballots, the following considerations appear to have had special weight:—

The minority favoring the proposed agreement believe that the income from the McKay Fund would relieve the financial condition of the Institute, and that association with Harvard University would broaden and liberalize the work of the school, enabling it to cope better with the changing problems of modern education and to resist the tendency to narrowness and inbreeding. Many hold that contact with the Harvard undergraduate body and the development of a dormitory system on a new site will promote the acquisition of those broad views and the development of those social talents which are of inestimable value to the engineer in the practice of his profession. Believing in the general principle of combination, they consider that the union of two educational institutions to control the field of technical education in this community would insure concentration of support, promote economy, and avoid duplication. They hold that the independence of the Institute is substantially maintained by the proposed agreement,—that by combination with the Lawrence Scientific School it can give to the community better facilities for training than either institution offers alone, and that it could thus be made perhaps the strongest technical school the world has ever seen.

The majority of the alumni, however, do not find that the proposed agreement secures these, in the main, desirable results. It seems to them so vague and incomplete as insufficiently to safeguard the interests and independence of the Institute, even if it were not dependent on two uncertain court decisions; and to many it is repugnant as tending to divert trust funds from the ends for which they were bequeathed. On the financial side they are convinced that the expense of moving to a costly and in some respects undesirable site, and of accommodating a sudden influx of new students, would for many years more than offset the income from the McKay Fund; and they foresee serious financial loss from the alienation of present friends and future benefactors of the Institute.

Educationally, they believe the application of the principle of business combinations is unsound. In this case the characteristic Technology spirit and atmosphere of earnest work would gradually deteriorate under the influence of an institution of alien temper and by contact with a body of un-

Digitized by Google

dergraduates of less serious aim. They find no provision in the plan for any real economy or avoidance or duplication, since both Harvard and the Institute continue scientific and even industrial work. They believe that under the agreement the new institution would be weakened by a divided Corporation and Faculty, and by its dependence upon two bodies of indifferent or hostile alumni, and that by an inevitable course of development, tending to complete absorption, it would give over to the University both advanced research and the more liberal branches of undergraduate training. An established present would be exchanged for a doubtful future.

If, on the other hand, this agreement is defeated, and the Institute relieved from the paralyzing agitation and uncertainty of the last few years, the majority of the alumni are confident that they and other friends of Technology will find funds for its support; they believe that its curriculum may be wisely broadened by development along its own lines rather than by an abrupt departure from them; they see many advantages in the present site, if combined with the progressive development of better housing accommodations for the student body on land now available within easy reach; and they look to the enlarged Lawrence Scientific School not as a formidable foe, but as a friendly ally, in the common cause of industrial education.

Appendix B

Votes of the Corporation in relation to a proposed agreement between Harvard University and the Massachusetts Institute of Technology

June 9, 1905:—

Voted, That the Executive Committee be requested, when they may ascertain that the Institute has power to sell the land on which it now stands, to propose to Harvard University an agreement upon the terms of the tentative plan now before this Corporation.

Oct. 11, 1905:—

Resolved, That the Executive Committee be directed to inform the Corporation of Harvard University that, in view of the recent decision of the Supreme Court in the case of John Wilson *et al.* v. the Massachusetts Institute of Technology, the Corporation of the Institute finds it no longer possible to proceed with the plan of co-operation which was considered at the meeting of June 9, 1905.

The Corporation of the Institute desires to express at the same time its

Digitized by Google

appreciation of the fairness and courtesy of the Corporation of Harvard University in the consideration of this question.

Resolved, That the President be authorized to communicate this decision to the Faculty and alumni of the Institute, and to invite the co-operation not only of Faculty and alumni, but of all friends of the Institute in the development of the Institute in its present site.

REPORT OF M. I. T. ALUMNI COMMITTEE ON SCHOOL

The recent decision of the Supreme Court "relative to the Boylston Street land of the Institute of Technology," * whereby it was ordered that "the plaintiffs are severally entitled to a decree with cost enjoining the defendant from the erection of any building or buildings covering more than one-third of the area assigned to it by 'Statutes 1861, Chapter 183,'" and the subsequent action of the court in refusing to modify the scope of its decree, have put a final quietus upon the proposed Harvard agreement. Whatever may have been the merits or faults of this plan, the merger is a thing of the past, and the Institute is face to face with quite as serious a situation as confronted it two years ago.

Lacking financial means to keep pace with her normal growth and to maintain her leadership in new fields, limited by restrictions upon the Boylston Street property, seriously cramped for space and equipment for the routine class-room and laboratory work of the student, not to mention the field of research and original investigation, the Institute is suffering most to-day from the effect of the past years of uncertainty and indecision, which have been involved in the careful consideration not only of the recent issue, but of the question of the future location of the Institute and general policy to be followed in the development of the school.

This effect has been inevitable, but, fortunately, the time has come when a definite decision may soon be expected from the Corporation, and when a vigorous and resolute advance must again be made. The initiative does not lie with the alumni, and it would be presumptuous for them to appear even to point the way for the Corporation, but there can be no doubt that, when the policy has once been defined by the Corporation, the alumni can be of service in lending a helping hand in the onward movement. This is no time for criticism or consideration of bygones, but for a friendly union of all interests, and for the hearty co-operation of the alumni with the Corporation in the future development of the Institute.

Even though it be true that the Institute has suffered by the uncertainties

* Reprinted in the TECHNOLOGY REVIEW of October, 1905, pp. 376–386.

Digitized by Google

of the past few years, it must not be inferred that the departments have stood still. What they have lacked in some ways has been compensated for in others by the constant interest and devotion of the Faculty and Corps of Instruction.

The decrease in number of students has not been altogether disadvantageous. Indeed, it has been distinctly advantageous in some respects, as notably in decreasing the size of the "Sections."

A renewed effort is apparent, particularly in certain departments, to broaden the work and interests of the students, to educate rather than to train them, and to prevent the development of their imitative faculties at the expense of the perceptive and reasoning faculties. The professional societies, meetings of the students for discussion of current articles in technical journals, and contact with outside engineers and engineering works are also playing an important part in their development.

The change in the entrance requirements in the languages, and the dropping of some of the work in the language department, has given time in the Junior year for the introduction of the so-called "third-year options in general studies," and for more extended professional work. Forty-five hours in the first term and seventy-five hours in the second term are thus devoted to electives in economics, history, English, and modern languages, and it is worthy of note that, "subject to the approval of the heads of their departments, fourth-year students will also be admitted to these general options without requirements as to examination."

In the English department Professor Bates has taken an important step, and perhaps led the way for other institutions, in modifying the entrance requirements in English so as to counteract the tendency to learn by rote and to develop the students' "power to distinguish in a broad sense literary values" rather than to cram "knowledge of specific books." The candidate is "required to write upon subjects *familiar* to him," not upon didactic themes, and is to be judged "by how well he writes rather than by how much he writes," and he is given practically unlimited range of choice in the field of standard literature in the work which he is required to do in anticipation of the examinations. This step seems to be a rational one, and its outcome will be watched with great interest by other institutions.

The same spirit is apparent in the electrical department, in the simplification of the curriculum and the curtailing of the lecture system in favor of more individual class-room and laboratory work; also, in the language department, in which Professor Bigelow, undaunted by the "cut" in time allowed for the languages, has made radical improvements. The work of

Digitized by Google

other departments in the same line is encouraging, but cannot be dwelt upon here for lack of space.

In the chemical department the number of options has been reduced from five to three by dropping the metallurgical option and merging the option which gave particular attention to fundamental work in mathematics, mechanics, and steam engineering, with a course in chemical engineering. The latter has been strengthened by the introduction of more work in chemistry, made possible by the changes in language requirements referred to elsewhere in this report.

The geological course now offers two options, one in geodesy and one in geology, and is giving an option in geological work to students of Course III.

It is interesting to note the effort being made by the different departments, in some of which the instructing staff already constitutes a good-sized departmental faculty, to stimulate the instructors in their work, and further advance the interests of the department by friendly conferences, discussions of current scientific journals, and lectures or talks, all within the department, upon investigations in progress or new scientific developments. This contact of the different members of the corps of instruction of any department must be of great value.

The research laboratories of physico-chemistry and industrial biology are proving their worth to the Institute, as well as to the public, and frequent calls have come from large organized industries for men fitted to take up research work within those particular industries. While it has been possible to fill some of these openings, others have gone begging.

The growing numbers of graduate students, and the large proportion of undergraduates who come to the Institute, already graduates of other colleges (the latter numbering this year 201 men out of a total of 1,466 undergraduates, or nearly one-seventh of the total number) raises the new and important question to the Institute, as to the extent to which it shall make provision for, or cater to, graduate work. It seems to be generally conceded that it is wiser for the Institute to devote itself primarily to undergraduate rather than graduate work. But, on the other hand, some changes in the curriculum, giving greater flexibility to the graduates in electing fourth and perhaps third year studies, combined with further development of the opportunities for research work along somewhat similar lines to the chemical and physical research laboratories, would seem to have advantages in broadening and strengthening the work of the school, and would, perhaps, furnish a powerful stimulus in maintaining leadership. If re-

Digitized by Google

search courses are developed, it is to be hoped, however, that they may constitute an integral part of the present departments, and not be under separate management or control, in order that the connection between the undergraduate and the research work may be as close as possible.

Increasing need is felt for more apparatus in certain departments, notably the mechanical and electrical engineering departments, which appear to be seriously hampered in their work in certain fields already very important commercially, in which they have little or no equipment, as, for instance, in the field of superheated steam, steam turbine practice, storage battery work, etc.

But little progress appears to have been, or indeed could be, made upon the dormitory or housing problem. A sensible suggestion has been made by Dr. Dewey, that before undertaking to build large dormitories the experiment might to advantage be tried of leasing a certain number of dwelling-houses, to be run as student boarding-houses and dormitories, under the general supervision of the Institute authorities. Practical experiment along this line, before investing large sums in dormitories, would involve comparatively slight expense, and might shed some light upon the best way of handling this very important matter.

Our well-beloved Dean Burton is abroad upon a year's leave of absence, during which time his office is being filled by Professor Merrill.

Owing to the expiration of the lease upon the land on Exeter Street owned by the Boston & Albany Railroad, upon which the old gymnasium was located, and the need of the railroad for this property, it became necessary to remove the old building. A temporary structure has, therefore, been erected on Garrison Street, which may serve until the new Walker Memorial Gymnasium can be located and built. It seems unfortunate that temporary arrangements could not have been made, perhaps by leasing some old building, which would have saved investment in further buildings of a "temporary" character.

A matter of great interest to the alumni,—alumni representation upon the Corporation,—which was announced by President Pritchett, in his address to the alumni at the Technology reunion, as likely to be taken up by the Corporation in the near future, has recently been acted upon by the Corporation. According to the plan adopted, five men are to be nominated annually by the alumni, of whom three shall be elected annually by the Corporation to serve for a period of five years. Under the provisions of the new plan, when in full operation, the Corporation will consist of three members *ex officiis*, thirty-five life members, and fifteen term members.

Digitized by Google

President Locke and the other members of the Executive Committee of the Alumni Association deserve great credit for the manner in which they, acting on behalf of the Alumni Association, with a committee of the Corporation, have handled this very delicate and important question. The subject is only touched upon here, as it is dealt with fully by the Executive Committee of the Alumni Association in its report.

It is interesting to note, however, in this connection, the good work which has been done by the Technology League, which, though organized for the warlike purpose "to oppose the contemplated alliance with Harvard University, or any similar alliance, to defend the educational freedom of the Massachusetts Institute of Technology, and to promote the influence of the Faculty and past students in its government," has proven its worth in the more peaceful path of collecting facts and evidence relating to alumni representation on the governing boards of the leading colleges, universities, and technical schools. This information has been of great value to the Corporation and the Executive Committee of the Alumni Association in its task of formulating a working plan for alumni representation upon the Corporation, and will aid the alumni to form an intelligent opinion upon the plan to be submitted to them.

Your committee has tried to keep in touch with departmental work at the Institute. With the Harvard agreement agitation it has not directly concerned itself, for the reason that this work could be, and was, done on behalf of the alumni by two very much more effective bodies,—the Executive Committee of the Alumni Association and the Class Secretaries' Association,—the one an elective body, the other, though self-organized and a free lance, a no less loyal and active exponent of alumni opinion.

In this connection, however, it is fitting to call attention to a matter which has impressed your committee more and more forcibly with the lapse of time and the growth and development of the Institute, that the work of this committee could be made much more effective than it is by certain changes: first, by co-operation with the Corporation; and, second, by closer connection with the Executive Committee of the Alumni Association.

It would appear that co-operation of this committee with the visiting committees of the Corporation might be of advantage to the Institute. Unfortunately, a suggestion of this sort cannot, with propriety, be made to the Corporation by this committee or by the alumni. It would seem to be perfectly feasible, however, to bring this standing committee into closer contact with the Executive Committee of the Alumni Association, either by making its members members also of an advisory body or council such

Digitized by Google

as has been referred to by the Executive Committee of this Association or, perhaps, by making the chairman of this committee a member also of the Executive Committee of the Alumni Association. It is undoubtedly a fact that information frequently comes to members of this committee which cannot with propriety or expediency be published or presented to the Alumni Association, and yet the knowledge of which in proper places might lead to results beneficial to the Institute. This suggests that a closer connection between the Executive Committee of the Alumni Association and the Committee on the School might be of advantage.

On the other hand, it is possible that the plan for alumni representation upon the Corporation, if adopted, may so modify conditions as to make it advisable to abolish or materially change the functions of this committee, particularly in view of the fact that the columns of the TECHNOLOGY REVIEW furnish a natural and ready channel for its comments or reports. It seems wise, therefore, to await the final action upon this matter before making definite recommendations as to the work of this committee in the future.

In conclusion and as of far-reaching importance to the Institute, record is made of the recent and very unexpected resignation of President Pritchett, who leaves the Institute to devote himself to the important work of administering the Carnegie Foundation Fund. It is not to be wondered at, perhaps, that Dr. Pritchett should feel drawn to this work which promises to be of such great benefit to the leading universities, colleges, and technical schools of the United States, Canada, and Newfoundland, for it will not only keep him in close touch with the leading educators and educational institutions in this country, but give him scope for the exercise of his rare capacity as an administrative officer. In the short five years during which he has directed the affairs of the Institute he has made his influence and personal magnetism felt, and the school has made marked progress. He has reached the students in a most remarkable manner, and has broadened their opportunities for wholesome social intercourse and the development of sound ideals of citizenship.

However Institute men may differ with President Pritchett on the past issue of a closer union between the Massachusetts Institute of Technology and Harvard University, they recognize with gratitude and appreciation what he has done for the Institute, and wish him the greatest possible measure of success in his new field.

Respectfully submitted,

LEONARD METCALF, '92.
GEORGE E. HALE, '90.
WILLIAM T. KEOUGH, '88.

Digitized by Google

EXTRACTS FROM REPORT OF ADVISORY COUNCIL ON ATHLETICS

It has been the endeavor of your Council:—

First. To study the conditions which command the physical development of the Technology students.

Second. To study the forms of athletic sports which are practicable.

Third. To adapt these sports to Institute traditions and Institute life.

Fourth. And, finally, to develop a system of athletic sports to bring out the greatest possible number of students to compete in various branches of exercise, all of which tend to develop the growing youth properly, without straining or overdoing the athletic side of college life.

A wave of college athletic reform is extending across the continent, and it is with no small amount of pride that your Council has shown, by its action, that in past years they had anticipated this condition of affairs, developed a simple system, and encouraged those sports in which the individual athletic work is most prominent. . . .

The progress in college athletics throughout the country, and the recent agitation to abolish football in other colleges, shows that the Institute has been the pioneer in athletic reform, as she has been the leader in technical education. . . .

It seems to the Advisory Council that Technology Field Day, conducted practically as a competition between the Freshmen and Sophomore Classes (at which football, relay racing, and tug-of-war are the events), and cross country, lawn tennis, and golf in the fall and spring, together with basketball and fencing during the winter, and the attention given to track athletics by fall, winter, and spring meetings, and the intercollegiate competition in the spring, give sufficient opportunity for the students to develop on purely healthy athletic lines, without danger to life or limb, and without the necessity of the undergraduate giving up practically half his time each day to athletic training, such as is incident to football, baseball, or rowing; and that, followed out on this plane, the individual student has a better chance to interest himself in athletic work, and at the same time get individual training and exercise.

During the year at least four hundred students have competed in the above sports, and at least as many more have taken athletic exercise, which has been greatly stimulated by having the proper grounds and apparatus to work with. During the fall and spring it is not unusual to see a hundred men at a time on Technology Field. . . .

The other side of the question, however, is wholly financial. All these

Digitized by Google

sports which our undergraduates engage in are not self-supporting, as is shown by the Treasurer's Report appended hereto, and further than this, although the receipts from the Tech Show have been larger each year, yet the expenses of conducting the athletic interests, such as sending the cross country team to New York to compete in the intercollegiate competition, and the probability of sending the fencing team to New York also in 1906, are constantly increasing, and the Advisory Council will soon be confronted with the proposition that it either must cut off some of these sports or not conduct them in as satisfactory a way as they have in the past, or a contribution or allowance must be made, preferably by the Institute authorities, to assist the Advisory Council in their work. It has been estimated that, if the Advisory Council were given to-day $1,000, it would place them on a sound and firm financial basis for quite a time to come, and it would seem proper that this should be done by the Corporation of the Institute, as the Advisory Council are to-day, through the various teams, interesting at least one-third of the students in the care of health and bodies in out-of-door work particularly, which is fully as essential as, if not more necessary than, that which can be carried on in the gymnasium.

Further than this, we might add that to-day the gymnasium athletic work is quite different from what it was ten years ago, or even five years ago, the students giving more attention to running, basket-ball, and similar events than to the old-fashioned parallel bars, chest weights, dumb-bells, etc., and that wholesome competition coupled with exercise in the open air is superseding the German system of indoor gymnastic exercise.

The men who take part in athletics, too, are above the average in their standing in scholarship. Out of seventy men who were on the recognized 'varsity athletic teams during last year, none was dropped, and but four were warned. The opinion also of all those who have taken athletic work is that they do their mental work much better and feel in better health than if they did not take it.

ANNUAL DINNER

The dinner took place in the large dining-room of the Brunswick, and was attended by about two hundred and seventy-five persons. The general subject for the evening was "The Future of the Institute," and Colonel Frank L. Locke, '86, the president of the Association, introduced in fitting manner the speakers, who were Presi-

Digitized by Google

dent Pritchett; Mr. Walter C. Kerr, President of Westinghouse, Church, Kerr & Company, who spoke for the profession; Mr. Desmond FitzGerald, who spoke for the Corporation; Professor William T. Sedgwick, who spoke for the Faculty; Mr. William H. King, '94, and Mr. Charles C. Pierce, '86, manager for New England of the Railway Department of the General Electric Company, who spoke for the alumni. The newly elected president, Mr. Everett Morss, '85, was also introduced, and said a few words.

President Pritchett said: The somewhat warm discussion of the past year has settled two questions and cleared the Institute's policy for the future: namely, the question of an alliance with Harvard and the possibility of removal to a new site. We are to go forward as we have in the past, with no formal relations to the University, but in the friendliest spirit of co-operation; and we must remain, at least for a number of years to come, on our present site. This outlook is in no sense discouraging, but it invites, on the other hand, every Technology man to new efforts for the future of the Institute. We need to at once go to work vigorously to find the money for more land, for new buildings, and for additional endowment.

By a vote of the Corporation a fortnight ago, the alumni receive a large part in the control of the Institute. It should be clearly understood that this carries with it great responsibilities.

Whatever policy as to these matters of site and of buildings the Institute may follow, the great and important things to be aimed at in the next decade seem to me the following:—

First, the freshening and improving of the courses of study. This is a never-ending work in every great institution. In a technical school it is particularly essential that the work of instruction in all courses be considered every now and then afresh, and not simply that modifications be made.

Secondly, with a growing number of graduate students, we must make our courses more elastic, so that the student coming from another college may find it possible to get the work which helps him most.

In the third place, if we are to aim for leadership, we must relatively increase our graduate and research work; and we must offer research, not only in chemistry, in physics, in biology, but in engineering as well. And, finally, we must steadily broaden the student life, and in such a way that students may not only rub against each other, but that they may know their professors in some wholesome, democratic way. I am not sure that

Digitized by Google

this last is not the greatest need, not only of our own institution, but of every American college as well. The weakness in our college life, from a rational standpoint, is the separation between the intellectual and the social life.

To-day a deal is being said concerning the abuses of football, and these abuses are evident enough; but the chief evils are not the accidental roughness or the occasional brutality, but rather the demoralization of college ideals, the displacement of a right perspective, the encouragement of extravagant habits, and the breeding of a system of graft; and for all these things the responsibility lies not alone with the students, but with the faculties as well, and these things have come about because sports have been developed by youths under the tutelage of professional trainers, and without any real comradeship with the teachers under whom they are sent to study. The cure for present abuses lies, in my judgment, not in the suppression of a particular game. It must go back much further to the real difficulty, the lack of any real companionship in American colleges between teachers and students. What the college student needs is a chance to know, in manly, democratic fashion, good and thoughtful and wise teachers, who possess a knowledge of men and boys as well as of books and laboratories. It is an anomaly in no wise to our credit that what we call college spirit reflects so much more of the professional trainer than it does of the scholar. In some way in our college and in all other American colleges a social life must be developed which shall be the joint life of student and teacher. The absence of such a fellowship upon simple democratic and natural lines is the weakest point in our American institutions.

I am not here to say farewell, although, as you know, my resignation has been offered to the Executive Committee. I count upon being with you for some months. It is no easy thing to bring one's self to separation from a work like that of the Institute, and I have come to such a conclusion only after much anxious thought. No nobler or better work could command the efforts of any man, and in the work to which I go I shall hope still to be in close touch with the Institute and its life; and I can assure you that I shall never lose my affection for the institution and for all for which it stands. I find it difficult to speak of parting from you, and most of all from the student body, without those choking sensations which make speaking difficult.

Mr. Kerr said in part: Long ago some one said that prophecy is dangerous, and many have since found that dealing in futures is uncertain. . . .

Digitized by Google

It has been said that the results of things follow not so much from their state as from their tendency. So, if this Institute will keep its tendencies right, there need be no worry concerning its state from time to time, nor its final goal.

A few self-evident facts may have a bearing upon its future. It can't become perfect. It can't advance any faster than the arts to which it relates. It can't advance materially faster than the general cause of education. It can't accomplish more than lies within the capacity of its raw material. It can't make an effective man out of a boy in four years. It can't inspire a spirit materially different from that of the atmosphere which it casts about itself. These are some of the limitations, and it probably has others. . . .

I assume that this Institute exists for the purpose of making engineers, whether they be mechanical, civil, electrical, hydraulic, mining, textile, or, by the added grace of art, architects. To this end it must have the right kind of raw material, and then treat it properly.

We are getting too many kinds of engineers. Systematic arrangements in education and in the departmental practice of engineering seem to be giving young men the idea that the scope of their attainment is the adjective by which it is known. They are thus led to specialize when too young, and wander away from the opportunity of being all-around men.

There is much educational theory which flies too high. There is too much weighing of one finely spun method against another, resulting in an over-academicness of method, leaving out of the reckoning some of the simple quantities which are the essence of the equation.

That a man may be educated in engineering, he must first be capable of becoming an engineer. Preparatory education will not make him capable, and entrance examinations will only partially test his capacity. We need a new standard in our educational institutions, which shall be a combination of entrance requirements and a mode of determining whether a man is endowed with engineering, architectural, or other technical faculties. This is not the time or the place to define how this shall be done, but that it can be done there is no doubt.

Many a young man comes to his Freshman year with five thousand dollars spent on his education since he was thirteen. He passes creditably, and takes high rank from the start. It may be that he would not become a real engineer if he stayed in the institution the rest of his natural life.

Another comes from humble surroundings, with few advantages, and perhaps is unable to pass the high entrance standard required. He has studied no modern language. He is not advanced in mathematics quite

Digitized by Google

to the entrance requirements. But he may have equal ability to perform undergraduate work and twice the engineering capacity of the man who passed his entrance examinations *cum laude*. I think the second man needs the opportunity more than the first. . . .

The sifting process may eliminate undesirable men after they have entered, but there are too many processes to prevent a certain desirable type of man getting in. Soon he stops applying, and then it is forgotten that he exists. There is something wrong about our entrance method. . . .

In an institution located so far to one side of the centre of population, it is probable that most applicants have the advantage of the excellent school systems of the East. But this Institute does not want to draw its student body largely from a local class. It needs the democracy of variation, which requires it to assemble its material from a broad range. It should avoid provincialism, and, while enjoying the advantages, it should stoutly resist the limitations of its special environment.

There is, therefore, an extra burden upon any institution located in the midst of a dense population to foster special endeavor to develop the man from within, as would naturally occur in the freer environment separated from the artifice which the world has set up and called advantage.

No one, I believe, doubts that the great preponderance of physical and mental strength, the capacity to do, the steady, resolute nerve that wins losing battles, comes in the main from the country, and not from the city. Lochinvars come out of the West. This is a great country. Its people are evolving too fast for close analysis. The highest development has been reached in the Eastern border. The most rapid development is farther west. The type of man who is making the greatest impression upon the progress of this nation is developing many hundreds of miles west of the Atlantic coast, and the Eastern education must, as time goes on, reckon with the evolution.

There is a self-sufficiency with which most Eastern institutions regard this which will make them losers in the friendly race which is being run. There is also a broad democratic spirit through which the Eastern institutions can become a part of the larger development, providing they do not flock aside and harbor a wrong impression of their relative position. There is no inherent reason why an institution should be better in Boston than in Michigan, the Mississippi Valley, or California. There is likewise no reason why the forces which are at work in the Middle and Far West should eclipse the advantages possible in these Eastern centres.

When an institution like this sets apart an occasion for the contemplation

Digitized by Google

of its own future, I would make a special plea for that future to be measured by the whole length and breadth of the land, regarding only as an incident the fact that the institution happens to be located in Boston. . . .

Consistent with this motive, it is not well to have a faculty composed of men who are too similar. There needs be a variation in type, temperament, and experience in men and teachers who are looked up to by youth as models of learning and performance. . . .

It would be better for many professors personally, for their work and for the students under them, to shift a few times in the course of their career from one institution to another or from their academic to the world's work.

A plan has already been inaugurated elsewhere by which the younger professors of the engineering faculty are required to spend about one-half of their time in practice in variable periods of a few years each, as may be determined by the director. This process has many advantages and some embarrassments, which cannot be recounted here. . . .

I think the future is safest when, instead of following a predetermined course, it is committed to hands that dare to do right things, regardless of precedent. The radius of action of such an institute is long. Its future and its opportunities are as broad as our land, the possibilities of which were graphically set forth in John Fiske's story of a French banquet held shortly after the close of our Civil War, and at which various countries were represented:—

Mr. Brown was called upon to respond to the toast of the United States, lately emerged from her conflict, "bounded on the north by the British possessions and on the south by the Gulf of Mexico, on the east by the Atlantic and on the West by the Pacific."

He responded by saying that he preferred his colleague, Mr. Davis, should speak to the United States *of the future*, "bounded on the north by the north pole and on the south by the south pole, on the east by the rising of the sun and on the west by the setting of the same."

Mr. Davis arose, and replied that, as it seemed the toast was to be the future, with no limit as to the boundaries, he would propose that the real American speaker of the occasion, Mr. Sterling, reply for the United States of *the* future, "bounded on the north by the Aurora borealis, on the south by the precession of the equinoxes, on the east by primeval chaos, and on the west by the Day of Judgment."

Mr. FitzGerald said in part: Early in the history of the Massachusetts Institute of Technology, President Rogers raised over its portal the banner

Digitized by Google

of "Intellectual Freedom." Storms of various kinds have since raged around the motto then unfurled, but in no case has that banner ever been lowered. It still flies undaunted in the breeze. Should the intellectual freedom of the Institute ever be seriously threatened, then indeed we may have cause for alarm.

Recently the peaceful waters have again been disturbed, and I suppose deep down in the hearts of all true friends of Technology there is a profound sense of relief that this storm, too, has passed, and that we have now only to unite in continuing the good work of adding more stones to our fair superstructure. An engineering work which safely withstands the assaults of some great freshet is doubly secure, and such I firmly believe to be the present position of the Institute.

I am to say a few words to you to-night in behalf of the Corporation. It is needless for me to assure you that the Corporation is an assemblage of very able and distinguished sons of the Commonwealth, whose first and only aim is the entire success of the Institute. We cannot be blind, if we would, to the long line of noble men who have given us the example of the most self-sacrificing devotion to the best interests of the school. The honored names which rise readily to our lips recall devoted service of time and money given freely for the upbuilding of as fair an institution of learning as ever impressed its influence upon mankind.

The Corporation cherishes with pride the traditions of its work, small though that work may be when compared with that of the Faculty or the alumni. It is true that at times, as all men are liable to err, we have had divided counsels. Some "will-o'-the-wisp" may have bewildered the senses with its glittering glare, and turned a majority from the clear and spiritual light of day toward some golden harvest beyond the pale, but, happily, these dangers have been averted. I count it one of the brightest harbingers for the future that the Corporation, almost as a unit, have recently adopted the suggestion of the alumni for alumni representation in the Corporation.

This action has been taken with such good grace and with such hearty celerity that it may well be the source for deepest satisfaction. It speaks volumes for the future of the Institute.

President Pritchett once said, "The fame of the Institute rests upon the work and reputation of the alumni." I think at this time he forgot all about the Faculty, but perhaps he made it up to them on another occasion. At any rate, as a member of the Corporation, I wish to say that I believe a large part of the glory of the Institute rests with the Faculty. For nearly half a century the Faculty have borne the burden and heat of the day, and

Digitized by Google

to their able, faithful, conscientious work are due the high standing and characters of the alumni. Nothing can dim the honor which must be attached to their constant efforts. Upon their shoulders rests the great burden of educational work and the educational policy of this great school. It is only necessary to glance at some of the distinguished names on the rolls of sister institutions to be reminded that not only has Technology retained its own masters of education, but it has provided an overflowing reservoir of instructors, professors, and even presidents for other fields of activities. Among the latter I may well be pardoned for alluding to the fact that Tech furnished its older sister across the Charles with that bright, particular star which so long and so honorably has held the first place in that part of the firmament. Every Tech man is, I believe, as proud of President Eliot as if he were the head of our own staff. His great ability, his unswerving devotion to the cause of education, his fairness in battle, are all a part of the glory of Technology. It is true that he has been recently credited with the heartless desire to capture us bodily for his own Harvard, but, however thankful we may be that the plan for turning us into a "Merger mule," to quote the graphic language of Dean Shaler, has miscarried, we cannot be unmindful of the fact that President Eliot only manifested his good taste when he turned his eye in our direction. Personally, I never lose an opportunity to read everything that comes from the lips of the President of Harvard. His addresses are full of rich and varied thought, and yet simple and easy to understand, as characteristic of all good art. They are singularly pithy in their outlines of the questions of the day. In a recent review of a philosophical nature, Dr. Eliot has declared that the real object of education should be to teach the young how to live happy and useful lives rather than to fit them for earning a livelihood. It is with extreme diffidence that I wish to suggest that this is exactly what we are endeavoring to do at the Massachusetts Institute of Technology; for is it not true that, when we teach man to subdue the forces of nature for the good of humanity, we offer him at the same time the sure reward of true happiness?

And now, gentlemen, a single word in closing. As alumni, your accomplishments have added to the glory of the Institute, but in the long record you have done nothing worthier of praise than your recent efforts to bring about alumni representation in the Corporation. The William Barton Rogers Fund, the Walker Memorial Fund, and now the Technology Fund testify to your self-sacrifice in the cause of your Alma Mater; but, in the new field which seems to be opening to your view, your opportunities for usefulness

Digitized by Google

are to widen, and you are to be brought into even closer relations with the progressive development of that grand institution in whose homage we have now assembled and whose reputation we guard with jealous care.

Professor Sedgwick said in part: Constitutions are not made but grow, and the same is true of institutions. From this standpoint, and from this alone, we can form some accurate idea of the future of the Institute. True growth means not merely increase in size, but also increase in structural differentiation and increase in kinds or varieties of capacity or power. It means, of course, increasing specialization.

In the original "Memorial," drawn up by our great founder in 1859, the new Institute was described as designed "to equip its students with every scientific and technical principle applicable to the industrial pursuits of the age." To this idea of its main function it has ever since adhered, and, as the industrial pursuits of the age have multiplied and differentiated in the nearly half-century which has since gone by, the Institute has grown and differentiated correspondingly.

One of the difficult problems for any scientific and technical school, such as ours, is now, and will be still more in the future, to determine how much time to give to the purely scientific and how much to the more technical principles, for I do not need to argue that to teach much more than principles is, in these days of expanding knowledge, a physical impossibility. The teaching of knacks, tricks, short cuts, and detailed processes, is usually, and is likely to remain, unwise: the teaching of fundamental facts and general principles is now, and always will be, indispensable.

Above all, we must never forget that a stream, though it cannot rise above its source, may sink far below it, and that any school of applied science which aspires to attain and to maintain leadership must see to it that the springs of pure science within it, from which all technical knowledge ultimately comes, are not allowed to run dry. It will always remain one of the chief glories of the administration of Francis A. Walker that he thus broadened and strengthened the Institute from within; and I devoutly hope that the Institute of the future may be further strengthened, rather than weakened, in this direction.

The commonest and easiest criticism of technical schools is that of "specialization," or narrowness. I have no time to deal at great length with this criticism, in which, as in most criticisms, there is some truth; but I do desire to cite a defence of our intensive education and a justification of specialization, which I have long regarded as a sufficient answer to

Digitized by Google

superficial critics. And this not from any "specialist" or any "narrow technologist," or even from a scientific man, but from one of the broadest and ablest and most distinguished of the older professors at Harvard, Professor Palmer, himself formerly a teacher of Greek and now a teacher of philosophy: "I have no doubt," says Professor Palmer, "that specialization is destined to become more marked in the American education of the future. It must become so if we are to produce the strong departmental scholars who illuminate learning in other countries; indeed, it must become so if we are to train competent experts for the affairs of daily life. The popular distrust of specializing is sure to grow less as our people become familiar with its effects, and see how often narrow and thorough study, undertaken in early life, leads to ultimate breadth. It is a pretty dream that a man may start broad and then concentrate, but nine out of every ten strong men have taken the opposite course. They have begun in some one-sided way, and have added other sides as occasion required. Almost in his teens Shakespeare makes a specialty of the theatre, Napoleon of military science, Beethoven of music, Hunter of medicine, Hugh Miller of rocks, Faraday of chemistry, Hamilton of political science. The great body of painters, musicians, poets, novelists, theologians, politicians, are early specialists. In fact, self-made men are generally specialists. Something has aroused an interest, and they have followed it out until they have surveyed a wide horizon from a single point of view. In offering wider opportunities for specialization, colleges have merely been assimilating their own modes of training to those which prevail in the world at large." (G. H. Palmer, "The New Education," pp. 102–104, Boston, 1887.)

It is an interesting fact that competent foreign critics, instead of deploring the "narrowness" of the Institute, as some of our alumni and others have done, constantly express surprise at its breadth. I may quote, for example, the latest of a long series of foreign visitors, the Principal of the University of Wales, who, only a few weeks ago, in addressing the graduates of that university, told them that,

"Where a professional or higher technical school is established in England, the tendency is to make it purely technical, to banish all literary studies, and confine the students' attention strictly to scientific profession. In America a broader view is taken. . . .

"The technical course itself in the great majority of cases includes a culture element, supplied not by Latin or Greek, but by French or German, history, civics, and economics. The Massachusetts Institute of Technology in Boston, the greatest school of the kind on the continent, makes literary

Digitized by Google

studies of this kind an indispensable part of the curriculum." (*Nature*, p. 44, Nov. 9, 1905.)

As for the attitude of the Faculty toward this matter, I believe that we feel, even more keenly than any outsiders, the great need in our students, and in ourselves, of all possible breadth compatible with such professional attainments as are indispensable. We welcome all practicable increase of the so-called culture element: we deplore all abridgment of it, whether among or within the courses. And I gladly seize this opportunity to express my own appreciation of the remarkably thorough, painstaking, and judicious work of our teachers of English history, economics, and statistics, who, in the face of many discouragements, have intelligently and ably grappled with the difficult problem of the conduct of these studies in a technical school, and, in my opinion, have gone far towards mastering it.

However, I am happy to report to you that, in pursuance of a long-cherished plan, the Faculty, having recently increased the entrance requirements in modern languages, on its own motion and not because of any external pressure, instead of seizing for professional work, as it might easily have done, all the time in the third year set free in consequence of the change, has definitely and cheerfully appropriated to general, cultural, or liberal studies a large proportion of that time. I desire to read you the list of subjects, and to ask you to reflect, as I read it, whether or not any technical school which, in addition to studies, already required of all students, in English, French, German, history, literature, political science, and a generous amount of summer reading, now further requires three hours a week to be spent during the first term of the third, or Junior, year, upon one of the following subjects, namely: economic history, advanced English composition, English literature of the eighteenth century, French (four courses), Spanish, comparative national government, international law, and the history of science; and in the second term five hours a week upon one of the following subjects, namely: railroad economics, banking and finance, labor problems, the organization of industry, contemporary literature, English literature of the nineteenth century, French, German, Spanish, municipal government, colonial systems, and European civilization and art,—whether, I repeat, a technical school doing these things is not doing about as much in the way of requiring so-called liberal studies as can reasonably be expected at present.

If we would discover the probable characteristics of the Institute of the future, we must inquire carefully what are its characteristics to-day and what they have been in the past. If we do this, we shall find, I think,

Digitized by Google

that the qualities which especially characterize the Institute as an educational organism are:—

First. High seriousness, earnestness, and strong purpose to achieve.

Second. A conviction of the necessity and the dignity of labor.

Third. An appreciation of the educational value of scientific and utilitarian studies.

Fourth. Professional standards and the professional spirit; and

Fifth. For and in our graduates capacity for immediate and intelligent service.

I do not, of course, suppose that every student or every teacher who comes to the Institute brings either a clearly defined purpose to achieve, or earnestness and high seriousness, but I do believe that the great majority come bringing with them, consciously or unconsciously, these preliminary qualifications.

Before a body of alumni who have borne the burden and heat of many a day in the Institute, I do not need to prove my second proposition; namely, that the Faculty and the students of the Institute have a rooted conviction of the necessity, the dignity, and, I may add, the efficacy, of hard work.

Many marvel at the attachment of our alumni to their Alma Mater, finding in their affection for the Institute something surprising among men for whom there exist no associations with ancient halls, hoary towers, or classic playgrounds; but those who know the deeper and more abiding bonds of association in honest, hard, and fruitful labor know also that the ties which grow up between fellow-workers, and between students and teachers, rigorous, but just, are akin to those which unite the veterans of war, the heroes of the battlefield.

A third characteristic of the Institute is its ineradicable belief in the educational value of utilitarian studies. In the early days of the Institute, when our great defender, Dr. Bigelow, pleaded for us against the mediæval schoolmen at the American Academy, it was necessary to insist, as he did continually, that between the educational value of classical and utilitarian studies no real or natural line can be drawn. To-day only the echoes of this controversy can now and then be heard, for all the world has learned that it is not so much what, as how, we study, that determines the quality or degree of learning; and few can now be found who dare deny that accurate learning and genuine scholarship may exist as truly in the technical school as in the university.

Lastly, one word more about the standards which have governed, do still govern, and, in my humble opinion, will continue in the future to govern

Digitized by Google

the Institute. These, as I do not need to tell a body of our alumni, are those of all high and noble professional life: namely, truth, accuracy (which is only another name for truth), skill (a word allied by derivation both to science and to conscience), capacity (which is only another name for power), and responsibility, the ethical handmaid of power.

Knowing the traditions and routine of the Faculty as I do, and knowing the temper and standards of the students as we all know them, I can harbor no shadow of doubt that the Institute of the future will develop along these already characteristic lines. Men do not gather figs from thorns or grapes from thistles, and, conversely, they do not gather thorns from figs or thistles from grapes. Living organisms breed true, and the Institute is a living organism.

But in order to live in the future worthy of the noble traditions already formed, and to expand and develop in the future according to the industrial wants of the age, we must patiently work on along the old lines and gradually develop new ones. We cannot stand still, we shall not go backwards, we must surely go forwards. To do this, we need to get the best possible raw material in the form of new students, the most effective living machinery in the Faculty, and the most wise and courageous leadership from President and Corporation. Then to the public which we serve, and to which we must look for support, we will say, as Montaigne's mariner of old said to Neptune in a great tempest: "O God, thou mayest save me if thou wilt, and if thou wilt thou mayest destroy me; but, whether or not, I will steer my rudder true."

Mr. King said in part: The great honor has been conferred upon me of expressing the loyalty and devotion of the graduates, their earnest desire to co-operate in the upbuilding of the Institute, their deep and steadfast faith and confidence in its future.

We are looking forward. As President Pritchett has said, "The questions upon which we have honestly differed are now out of the way." We desire simply to secure, so far as in us lies, as men united in the achievement of a common object, the success of the Institute of Technology. We believe in its principles and what it has accomplished, and we are desirous of aiding in its future work. In response to the invitation of the Corporation contained in the recent letter of the President to the alumni and former students, we pledge our hearty co-operation, "with the ambition," as the President ably says, "to make the Institute the most efficient means possible of ministering to the intellectual, moral, and social life of its students."

Digitized by Google

We are not reformers, and we have no desire to dictate future policy. We believe that the maintenance of the high standard of the scientific as well as the general work may be intrusted to the able men having the courses in charge. But we hope to be of assistance, and in this spirit I offer the suggestion that, to a certain extent, general studies may profitably, without detracting from scientific work or unduly encroaching upon the limited time of the students, be still further extended.

Graduates must enter into relations with men who know little of their special knowledge and training, and general information and culture must be the medium through which they gain the respect and confidence of these men, and thus the opportunity to bring their scientific knowledge into most effective use. If they have not received such benefits, they are at a disadvantage at the beginning of their career. What an assistance it would be if, for instance, in addition to the outside lecturers on scientific subjects, students were brought more in contact, even for short periods, with able men engaged in pursuits of literature and art, finance and business, and thus felt the influence not only of the subjects which interest such men, but the personality of the men themselves!

In suggesting the advantage of somewhat extending subjects of general information, I refer principally to purely scientific courses, for, though convinced that a wide field for usefulness awaits the re-establishment and development of the former course in general studies, my loyalty to the Institute is not measured by my regard for and belief in that course.

No stronger evidence could be produced of the earnest intention of alumni to co-operate than the fact that the graduates of Course IX., a large body of men occupying positions of trust and responsibility, have united in the common effort for the upbuilding of the Institute.

We all agree upon the principle of scientific education. That principle, first successfully applied on the broadest lines by our noble founder, President Rogers, and continued by President Walker,—men who have been a tower of strength and a source of inspiration,—merits the success which it has achieved. The duty and honor of perpetuating that principle has come to us as a priceless heritage. We are united, Corporation, Faculty, and graduates, in its application and extension, in the worthy task of achieving a splendid future for the Institute. In this effort we shall not have the ability and energy of President Pritchett.

All the more is it our duty, who remain charged with responsibility, to co-operate to the best of our energy in the cordial and earnest effort to secure the highest success. We regard the maintenance of our Institute in the

Digitized by Google

same spirit displayed by Webster when he said, speaking of the Temple of Justice, "Whoever clears its foundations, strengthens its pillars, adorns its entablatures, or contributes to raise its august dome still higher to the skies, connects himself in name and fame and character with that which is, and must be, as endurable as the frame of human society."

Mr. Pierce said in part: I have listened with the greatest pleasure to the kind words of the speakers in regard to the Institute to-night, and although I am no battle-scarred hero, as Professor Sedgwick is, I wish to say something for the associate member.

The associate member must be reckoned with in your future organization, whether you believe it or not.

Now I am one of the few who do not believe that the Institute of Technology is absolutely perfect.

The Institute, as I remember it twenty-three years ago,—and I have kept pretty closely in touch with the Institute since,—was an institution formed primarily to manufacture and deliver engineers. I do not think that is right. I do not think that the Institute can ever make engineers. I think the Lord makes the engineer. He is born, and all that you professors can do is to take that piece of material furnished you, and fashion it.

The main thing that the Institute, in my judgment, should teach is originality. That is what the world pays for,—originality in thought, originality in action, originality even in manner.

The Institute of Technology was gotten up with the idea of educating men under the best conditions. It is not a poor boy's paradise, and it should not be made so. You ought to develop engineers of the grandest kind. I firmly believe the Institute to-day stands on a new threshold. When this unpleasant little affair came about, when people honestly disagreed in regard to the future of Technology, there was then a new Tech born. We have this Tech. It has been handed over to the Alumni Association, and, to put it into simple, common business parlance, the Alumni Association and the people who have stood for this new Tech have made a bluff, and it is up to us to-day to make good.

President Morss said in part: I wish to thank you for the honor you have done me in electing me to this position. We have heard here to-night two things: First, that the Institute is not absolutely perfect to-day, although we are very proud of some of the things she has accomplished in the past. We have also heard that the responsibility is on the alumni for her future, under present conditions, more than ever before.

Digitized by Google

Those of us who are on the outside can afford to leave to the President and Corporation and the Faculty the details of how the educational problem should be worked out; but it is, in my opinion, absolutely up to us to support them in the financial point. I think we all realize that, no matter how wise the administration may be, they can't go ahead and do the things which ought to be done if they have not got a dollar in the world to do it with, and everything done in the line of progress costs money.

If you look back and consider every year for twenty years, you will find that it costs a good deal more per student to-day than it used to cost. And that is the situation we have got to face. The money has got to come from somewhere in order that the development of the Institute shall be carried out as it has got to be if we are going to make good. The Technology Fund was conceived before the merger proposition ever came up. It was started during the merger discussion. Its fundamental idea was to promote the development of the Institute. The main part, perhaps, is the collection of endowments from outsiders. And in addition to that is the collection of money for the present needs of the Institute to tide over the time until the endowment can be raised. The committee is not exactly dead: it is not even asleep, as will be shown very shortly. And I wish to ask that you will give us your most hearty co-operation, realizing your responsibility. The problem is not, how little you can give to get out of this scrape, but How much can you do for the advancement of the cause?

We have to-day approximately $200,000 in subscriptions. It is my hope that we may practically finish this thing up by the June meeting, and present the subscriptions to the Corporation,—not $200,000, but something very much in excess of that.

Digitized by Google

GENERAL INSTITUTE NEWS

CORPORATION NOTES

The stated Corporation meeting of December 13 was mainly given to the presentation of the annual reports of the President and Treasurer, extracts from which appear elsewhere in the REVIEW. At the close of his report President Pritchett announced to the Corporation that he had, on the previous day, presented his resignation to the Executive Committee. The President stated that he is to take up the work of the Carnegie Foundation, with headquarters in New York City. Dr. Pritchett stated, further, that Professor A. Lawrence Lowell had asked to be relieved of the duties of membership upon the Executive Committee of the Corporation. Mr. Lowell's resignation was, with much regret, accepted by the Corporation, and a number of the members expressed their high appreciation of the services of Dr. Pritchett and their regret at his decision to resign the presidency.

The Committee on Nominations presented to the Corporation a plan for amending the By-laws of the Corporation to provide for term members to be elected from lists submitted by the Alumni Association. After discussion and slight amendment the following amendment was adopted by a practically unanimous vote:—

AMENDMENT TO THE BY-LAWS OF THE CORPORATION

Section A.—No further election of members of this Corporation shall be held under the provisions of Section I. of the present By-laws until by death or resignation the number of life members shall have become reduced below thirty-five. Thereafter the number of such life members shall be limited to thirty-five, who shall be elected as provided in said Section I.

In addition to the members elected for life there shall be elected fifteen members to hold office for terms of years, as set forth in the following sections.

The provision of said section I. limiting the total number of members to not more than fifty shall be suspended until the total membership shall

Digitized by Google

have become reduced, as herein provided, to thirty-five life-members, three members *ex-officiis*, and fifteen term members; and the limit of membership shall thereafter remain at fifty-three.

Section B.—The Nominating Committee shall present to the Corporation at the regular March meeting of 1906 fourteen names, selected by letter ballot by the Alumni Association, and shall report concerning the same. These names shall be voted for at said meeting by ballot, each member present being entitled to vote for nine persons out of said fourteen, and the three persons receiving the largest number of votes shall be members of the Corporation to serve for five years. The three persons receiving the next largest number of votes shall be members of the Corporation to serve for four years. The three persons receiving the next largest number of votes shall be members of the Corporation to serve for three years.

Section C.—In each year subsequent to 1906 the names of five candidates for term membership shall be presented by the alumni Association to the Nominating Committee of the Corporation thirty days previous to the March meeting, and the names thus presented shall be reported to the Corporation at said March meeting by said committee, with its report thereon. These names shall be voted upon at said meeting by ballot, each member present being entitled to vote for three persons out of said five, and the three persons receiving the largest number of votes shall be members of the Corporation to serve for five years.

If any vacancy occurs among the term members through death, resignation, or otherwise, the Alumni Association shall present to the Nominating Committee of the Corporation thirty days previous to the March meeting next following the occurrence of such vacancy two names for each vacancy, in addition to the five names prescribed in the preceding paragraph, and these additional names shall be reported by said Nominating Committee to the Corporation, together with the five names provided for in the preceding paragraph. These additional names shall be voted upon at said meeting by ballot, each member present being entitled to one vote for each vacancy, and the person or persons receiving the largest number of votes shall be members of the Corporation to serve for the unexpired term or terms

Section D.—In case of a tie affecting any election for term membership, the names of the persons receiving an equal number of votes shall be resubmitted for election at the same meeting.

Anything hereby directed to be done at the March meeting may be done at any adjournment thereof.

Digitized by Google

It shall be the duty of the Nominating Committee to send the names of the persons presented for term membership to each member of the Corporation at least two weeks before the March meeting.

Term members shall hold office for their respective terms with all the rights, privileges, and duties pertaining to membership in the Corporation under its By-laws.

Term members shall at no time be eligible for re-election until at least one year after their last term of service has expired.

Only members of the Alumni Association who have not been connected with the Institute as students for at least five years shall be entitled to vote for term members.

PUBLICATIONS

The annual catalogue was issued the present year slightly in advance of the normal date, December 1st, a considerable gain over the date of issue in earlier years when the Register of Graduates was included. In spite of the omission of the Register, the present catalogue numbers more than four hundred pages.

The principal changes compared with the issue of last year are as follows:—

Changes in the Faculty. Professors: Clifford, Vogel, Bartlett, Merrill, Miller, Walker, promotions; Bigelow, new appointment. Associate Professors: Norton, Fay, promotions; Mott, new appointment. Assistant Professors: Mulliken, Haven, Leland, Drisko, Smith, Winslow, Doten, Johnson, promotions; Coolidge, Spofford, resignations.

The remodelling of all the course schedules in the third year consequent upon the increased entrance requirements in modern languages.

The introduction of the Options in General Studies (p. 72).

The rearrangement of the options in the Course in Chemistry, and a practically complete change in the character of the Course in Chemical Engineering.

A thorough revision of the Course in Geology and Geodesy.

The expansion of the statement with reference to Summer Courses (p. 74).

Digitized by Google

A change in the form of examination in English required for entrance (p. 102).

The introduction of an Alphabetical Subject Index (pp. 114–119).

The arrangement of Scholarship Funds in the order in which they were acquired by the Institute (pp. 308–312).

The addition of four new alumni associations: The Technology Club of Rhode Island, The Technology Club of New Bedford, Vermont Technology Association, The Technology Club of Hartford.

Considerable effort has been made to improve the arrangement of the matter, particularly in the latter portion of the catalogue, and the typographical appearance of the whole work. The catalogue has been printed entirely from new type and a new copy of the seal used on the cover.

GRADUATE SCHOLARS

Fellows, by the present faculty definition, are either students who are working for the degree of Doctor of Philosophy, Science, or Engineering at the Institute, or Institute graduates who are especially appointed by the Faculty for study at other institutions.

The number of candidates for the degree of Doctor of Philosophy at the Institute is seven, all in the Research Laboratory of Physical Chemistry. The separate classification of graduate scholars has been discontinued.

LEWIS AND CLARK EXPOSITION

DECEMBER 12, 1905.

INSTITUTE OF TECHNOLOGY, BOSTON, MASS.:

Gentlemen,— It gives me great pleasure to officially notify you that your exhibit at the Lewis and Clark Exposition was awarded a gold medal. These medals are furnished by the Exposition management in bronze (marked gold), and are not engraved. The Massachusetts Board of Managers have ordered them engraved and plated with gold. We hope to deliver them some time in January.

Digitized by Google

The Massachusetts Board of Managers have also ordered a silk banner to be given as a souvenir with each exhibit that received a gold medal. These banners we are presenting with our compliments and with thanks for the splendid exhibits prepared and intrusted to our care.

If you have not already received your exhibits, you should do so in a few days.

Very respectfully yours,

(Signed) WILSON H. FAIRBANK,
Executive Commissioner.

GENERAL NOTES

On December 13 the Institute was visited by a special commission from the University of Toronto, consisting of Sir William R. Meredith, Chancellor of the University, Mr. J. W. Flavelle, Canon H. J. Cody, Dr. D. Bruce Macdonald, and Mr. A. H. U. Colquhoun. This commission was appointed in October to examine into the condition and administration of the University of Toronto, and to make recommendations for its reorganization. After visiting the Institute, the commission were given a luncheon at the Technology Club, in order that they might meet the members of the Corporation and Faculty.

Professor Bjerknes, of Stockholm, who has been giving a course of lectures on mathematical physics at Columbia University, spent a few days at the Technology Club early in January, and gave an illustrated lecture at the Institute on "Hydrodynamic Fields of Force." The attendance included many members of the instructing staff of Harvard University as well as of the Institute, and Professor Bjerknes's remarkably interesting experiments were greatly enjoyed.

Professor Swain has given a series of readings from standard authors on Wednesday afternoons from four to five o'clock. This course has been arranged by Professor Swain in order to interest men taking Civil or Sanitary Engineering in good books and good reading.

Digitized by Google

G. W. Rolfe, Instructor in Sugar Analysis, has gone to Porto Rico, where he is to take charge of a sugar plantation on the Constancia Estate. During the three or four months that he will be away, A. G. Woodman will take charge of his work at the Institute.

Through the generosity of Dr. H. W. Newhall, of Lynn, Mass., the Institute has recently come into possession of a number of interesting and valuable mineral specimens, which formed a part of a collection made a number of years ago by Dr. Newhall, father of the present donor.

There has recently been placed in the library of the Electrical Engineering Department a portrait of the late Augustus Lowell, who was for so many years actively identified with the best interests of Technology and for whom the laboratories of electrical engineering are named. The portrait is presented by his sons.

Charles Tidd Baker, deceased, the well-known insurance broker, whose office was at 85 Water Street, gave twenty thousand dollars to the Massachusetts Institute of Technology. In connection with this handsome gift, he says in his will, "I hope this bequest will lead others to do likewise."

The officers whom the Instructors' Club has elected for this year are: Mr. G. W. Rolfe, president; Mr. J. Blachstein, vice-president; Mr. S. H. Thorndike, secretary and treasurer; and Messrs. N. R. George and C. M. Swan, members of the Executive Committee.

The friends of Professor William E. Mott, of the Department of Civil Engineering, will be deeply grieved to learn of the sad bereavement which has come to him in the death of his wife. Mrs. Mott was a most charming and accomplished woman. The greater part of her married life had been passed in Ithaca, where, as the head of a delightful and hospitable home, she made hosts of friends by whom she will be sadly missed. She had been ill for several years, but, since coming to Boston only a few months ago, her condition had become more serious, and she had been unable to take up any social duties, and hardly to renew old friendships made here in previous years. Her disease made rapid progress and she passed away on the 12th of December. Her death leaves a void in many hearts which cannot be filled.

Digitized by Google

Following a custom established several years ago, the heads of the various courses have given a series of talks to the Freshman class on the work of the different departments. The purpose of these talks is to help the men in choosing the line of study which they will follow during the next four or five years, and to give them a better understanding of the work which lies before them.

The holding of the annual meeting of the American Association for the Advancement of Science at a point so remote as New Orleans, precluded attendance of members of the Instructing Staff. Meetings in New York and Baltimore were attended by several members of the departments of mathematics, physics, and economics.

The dates for the spring intermission, fixed by the Faculty, are Thursday, Friday, and Saturday, April 26, 27, and 28.

DEPARTMENT NOTES

CIVIL ENGINEERING

The staff of instruction of the Civil Engineering Department has experienced more change this year than for some time past.

Professor C. M. Spofford, class of 1893, who has been connected with the department since 1896, has resigned to accept the position of Professor of Civil Engineering at the Brooklyn Polytechnic Institute. Professor Spofford, whose work has been mainly devoted to instruction in structures, bridge design, and railroad field work, will be greatly missed by his associates, but their good wishes for his future success go with him in his new position.

Five of the assistants of last year, Messrs. Blum, Hartshorne, Holbrook, Stetson, and Thurlow, have resigned to engage in outside work, and all have secured good positions.

The additions to the teaching staff of the department have been Professor William E. Mott, Mr. George E. Russell, and seven assistants from the class of 1905; namely, Messrs. John Ayer, James E. Barlow, Carl T. Humphrey, John H. McManus, Willard E. Simpson, Frank C. Starr, and Kilborn Whitman, Jr.

Professor Mott comes to the Institute as Associate Professor of Hydraulic Engineering, after a long experience in teaching at Cor-

Digitized by Google

nell University, where he occupied a similar position. He has also had outside experience, and is a mature teacher and engineer who will greatly strengthen the instructing staff of the department.

Mr. George E. Russell also comes from Cornell University, where he has been an instructor for the past year. After graduating from the Institute in 1900, Mr. Russell remained here as an assistant for one year, and then resigned to accept a position with the American Car and Foundry Company, with which corporation he had an experience of three years, which familiarized him not only with the engineering problems of such a corporation, but also with business matters as well. He returns as Instructor in Civil Engineering, to devote himself once more to teaching as a profession.

Mr. S. H. Thorndike will devote himself henceforth principally to bridge design and stereotomy. His experience in the City Engineer's office of Boston renders him well qualified to undertake this work, in a great part of which he will take Professor Spofford's place.

Mr. J. W. Howard, 1903, after two years of very satisfactory work as assistant, has been promoted to be Instructor in Civil Engineering.

The teaching force of the department is now larger than ever before, comprising seven members of the Faculty, five instructors, and seven assistants.

Many of the members of the instructing staff of this department devote themselves during the summer and to a considerable extent during the winter to outside work. Professor Swain during the past year has been consulting engineer for the new bridge across the Connecticut River at Chicopee, having prepared all the designs and specifications for the work and superintended its construction. The resident engineer on the work was Mr. C. T. White, of Springfield, of the civil engineering firm of Durkee, White & Towne. This bridge is now nearing completion. It consists of seven riveted spans of 170 feet each, on masonry piers. Professor Swain has recently been employed as consulting engineer for the new bridge across the Merrimac River at Haverhill, for which plans and specifications are now being prepared.

Digitized by Google

Professor McKibben has been engaged in assisting Professor Swain in his work, involving the designing of masonry and steel structures and the inspection of bridges for the Railroad Commission.

Professor Allen, during the fall, had a call to go to South America to examine a railroad property, but concluded that it was wisest not to undertake it.

Mr. C. B. Breed during the past summer has been Assistant City Engineer of Lynn. He has been consulted by that city with reference to the plans for abolishing grade crossings, and has given particular attention to the study of that problem. He has also been engaged in other capacities.

Mr. G. L. Hosmer has been engaged during the past summer on the magnetic observations in Labrador, conducted under the auspices of the Carnegie Institution.

Mr. Thorndike, as before mentioned, has been engaged in the office of the City Engineer of Boston, to which work he devotes his spare time during both summer and winter.

Mr. J. W. Howard has been engaged during the summer as instrument man by the Massachusetts Harbor and Land Commission. Of the new assistants, Mr. Ayer was engaged during the summer as transitman on some railroad location work. Mr. Barlow was rodman for the Charles River Basin Commission, Mr. Simpson was in the Maintenance of Way Department of the Southern Pacific Railroad, and Mr. Whitman was rodman for the Metropolitan Park Commission.

The class graduating last year was the largest ever graduated from this department, numbering 56 in civil engineering and 9 in sanitary engineering. This number, together with the assistants who resigned and some special students, made a total of about seventy students available for positions. Notwithstanding this large number, the number of applications for men has been entirely out of proportion to the number of men available. The number of such applications received up to November 7, suitable for men in the graduating class has been 128, so that the department could have found positions for many more men than were available. Of the

Digitized by Google

positions offered, 16 were in strictly structural work, 47 in railroad work, 12 in municipal work, 18 in hydraulic engineering work, 3 in sanitary work, 12 in teaching, and 20 in business or miscellaneous positions.

MECHANICAL ENGINEERING

The improvements in the Course mentioned in the TECHNOLOGY REVIEW of last July have now become effective in the third and fourth years, so that the Course is much benefited by the facts that, besides a very considerable increase in the time devoted to literary subjects, there has been a decided gain in the time devoted to Differential Equations, in that devoted to the instruction given in Electrical Engineering, and also in that devoted to each of the four options.

The total number of students to whom instruction is given in Mechanical Engineering subjects, including, of course, students of the second, third, and fourth years of many Courses in addition to those taking the Mechanical Engineering course, is, this year, 822, a very large part of the total number of the second, third, and fourth year students attending the Institute. Instruction is given in Applied Mechanics to 425 students.

The number of candidates for a degree in Mechanical Engineering is, this year, 79, and this large number of fourth-year students, combined with the lack of a sufficient amount of apparatus in the laboratory, has rendered it necessary to have an unduly large amount of the thesis work performed outside the laboratory, which is in continuous operation, and is very much crowded.

The department has received as a gift, from the Westinghouse Air Brake Company, a complete and modern air brake equipment for an electric car.

Several members of the instructing staff of this department have been called upon for additional work in connection with the administrative work of the Institute, with the work of the Lowell School for Industrial Foremen, and in other connections.

The publications of members of the department during the past year have been as follows:—

Digitized by Google

Gaetano Lanza. New and revised edition of "Applied Mechanics."

Gaetano Lanza. Memoir of Professor L. Tetmajer, Proc. Am. Soc. Testing Materials, 1905.

Gaetano Lanza. Report of Committee on Standard Methods of Tests. Proc. Am. Soc. Testing Materials, 1905.

Edward F. Miller. "Practical Instructions on the Use and Care of the Crosby Steam Engine Indicator." Edited by Edward F. Miller.

S. H. Woodbridge. Report to Congress on Central Plant for Executive Building.

ARCHITECTURE

The changes made during the past summer in the drawing-rooms have already shown the best results. Additional windows have increased the working floor area, and the wall space gained by dividing up the great rooms into alcoves has provided amply to show off the splendid collections of original drawings which the department owns, and which hitherto have had little chance of being seen or used to the best advantage. The collections are particularly rich in the choicest work of the Paris Beaux-Arts. Perhaps the most interesting group is Pascal's competitive drawings for the Hotel de Ville at Paris, a gift from Mr. Pascal himself. Among other drawings of this distinguished architect are those which won for him the Prix de Rome. Then there are the original Envois de Rome by such men as Tournaire, Chaussemuche, Recouré, Chifflot, and the famous drawings by Brune which still hold their own in comparison with the splendid more recent work.

Bringing together the third, fourth, and graduate classes in the way that has been done has already given promise of good results. In putting together these seventy-five men of different degrees of experience and ability, in increasing the *esprit de corps* (which has never been wanting), in giving the weakest as well as the strongest the opportunity of direct association with the best instructors, we have succeeded in combining in the regular instruction all the best qualities of the French atelier, in which, after all, is the essence of the Beaux-Arts. The rooms are crowded, but there are no complaints, and the amount of work accomplished leaves nothing to be desired.

The new exhibition room, which makes for a very important part

Digitized by Google

of the instruction, and is designed to contain simply the current work as completed, measures sixty by twenty-five feet. This seemed large when first laid out, but nearly every week there is a new exhibition covering its walls, and the room is always an attractive resort for the student. The student's work is hung here, least of all for the sake of exhibition, but because of the opportunity it gives the instructors to criticise it before the classes. At the end of each problem this criticism takes place. Its value is such that no student will willingly miss it, and what is learned through this sizing up of one's work and by its comparison with that of others is the greatest aid in helping one to learn to criticise himself and make the most of his reasoning powers.

The only further condition needed, in the opinion of Professor Chandler, to give the department its complete strength, is to require five years for the degree instead of four. He says that every student should be made to take the opportunity now offered in the graduate class, for it represents a year's study of subjects essential to the highest professional success, and which the student is now prepared to undertake because of his training during the previous four years. Even with a five years' course there would be demanded less for the degree than is required by the professions of Law, Medicine, or the Ministry. The strides taken by the graduate students are always a surprise, and no better proof of the quality of work accomplished during this year when one is released from the strain of the Tabular View is that architects seeking for draughtsmen invariably ask first for men from the graduate class.

A very attractive address was recently given to the fourth-year students by Mr. Gorham P. Stevens, '98, in relation to his work on the Acropolis while holding a scholarship in the American School in Athens. Mr. Stevens's connection with the school lasted a year and a half, during which he devoted much time to the measuring and drawing of the Erectheum in all its details. Until then that most interesting building had never been exhaustively studied, and it was a great compliment paid to the American School by the Greek authorities, when it was given the opportunity of so doing. The architect needed, in his share of the undertaking, had to be most thor-

Digitized by Google

oughly trained and appreciative, and withal a most skilful draughtsman. The search finally settled on Mr. Stevens, who had returned recently from his studies at the Paris Beaux-Arts, and was then in the office of Messrs. McKim, Mead & White of New York. These gentlemen were willing to loan Mr. Stevens for the time needed. Mr. Stevens's address told of his share of the work on the Erectheum, of the interesting discoveries made in Greek constructive methods, and of the opportunities which this exhaustive research has given the school to solve some of the vexed questions peculiar to this building. His remarks were illustrated mainly by slides made from photographs of his drawings, and they were of such good quality as to make one long to see the originals. Mr. Stevens's part in this undertaking is the most interesting, of course, to architects; but the whole work is to appear eventually in print, published by the American School, and it ought to have the greatest interest for architect and archæologist alike.

Mr. Stevens is now back again with Messrs. McKim, Mead & White.

ELECTRICAL ENGINEERING

There has been placed in the library of the department a crayon portrait of the late Augustus Lowell, given by his sons. The portrait is the work of Baldwin Coolidge, and the likeness is strikingly good. It is peculiarly gratifying to have this remembrance of one who was for so many years actively connected with the best interests of the Institute of Technology, and one for whom the Electrical Engineering Laboratories are named.

Through the courtesy of Matthew C. Brush, 1901, Vice-President of the Boston & Suburban Electric Company, the Seniors in the department spent the afternoons of the week of October 30 in an inspection of the Lexington power station of this company. In connection with this visit a formal report was submitted by each student for criticism, the department of English co-operating.

On Wednesday evening, November 1, the Electrical Engineering Society held a meeting at the Tech Union. The speaker of the evening was Dr. F. B. Jewett, of the engineering staff of the American

Digitized by Google

Telephone and Telegraph Company, who spoke on "Some Limitations in Long Distance Telephony." The paper of the evening was followed by a social hour.

At the Journal Meeting of December 7, Mr. C. A. Bettington, mechanical engineer of one of the large companies operating on the Rand in South Africa, described a device for the burning of powdered coal when mixed with air, to be applied to any type of boiler. Experiments in connection with this are already being conducted at one of the stations of the New York Edison Company with most promising results. Mr. Bettington is carrying on certain special work in the department.

On the evening of Thursday, December 7, the Electrical Engineering Society held a meeting in Room 6, Lowell Building, the address being made by Mr. J. L. Jones (VI., 1903), New England representative of the Gray National Telautograph Company. He spoke at some length on the history of the invention and its present uses, and exhibited a set in actual operation. The meeting was very largely attended.

Professor A. S. Richey, who has recently come to the Worcester Tech from the Indiana Traction Company, spent the morning of November 10 in looking over the equipment of the department and in discussion of its methods of instruction.

On the afternoons of Tuesday and Wednesday, December 19 and 20, the Senior Class visited the works of the Simplex Electric Company in Cambridge, and will submit, as is usual with these excursions, a formal report. This visit was made possible through the courtesy of Henry A. Morss (VI., 1893), Vice-President of the company, and on the Saturday previous Mr. Morss gave an illustrated lecture, discussing the various processes concerned in the insulation of wire.

The Ridgway Machine Company has loaned to the department a Thomson-Ryan variable speed motor.

The Lincoln Electric Company is also to send one of its variable speed motors, and a comprehensive series of tests will be carried out on these two machines as a part of the regular thesis work of this coming term.

Digitized by Google

There has been received from the National Battery Company of Buffalo, N.Y., a board containing samples of the various types of battery plate manufactured by them.

The Westinghouse Electric Company has furnished copies of photographs illustrating some of the various types of apparatus of its manufacture.

The work with the Lowell Foremen is being conducted along the same lines that were followed during the past year, and in addition a course of lectures and laboratory work is being given under the auspices of the Lowell Institute to members of the Eastern Association of Physics Teachers.

The lectures on the "Mechanical Engineering of Electric Power Plants" have been completed by Mr. Howard L. Coburn. This placing them thus early in the term is an advantage, in that the information obtained is available for the students in their various excursions to power plants about Boston.

The greater part of the work in the Standardizing Laboratory is now accomplished in the second term of the third year, thus leaving the Senior Year, so far as this work is concerned, for the investigation of such special problems as may arise in connection with thesis work.

Professor H. W. Smith will spend the second term in visiting various technical institutions in this country and abroad, returning for the opening of the school in the fall of 1906.

GEOLOGY

Professor Jaggar, collaborating with Dr. Charles Palache of Harvard, recently published a folio of the Geologic Atlas of the United States on the Bradshaw Mountains, south of Prescott, Ariz. The folio contains topographic, geologic, economic, and structure section sheets of a mining district a short distance from the famous United Verde copper mine. The region is distinguished by intrusive granites and diorites in highly metamorphic sedimentary rocks of Algonkian age. In addition there are large areas of surface volcanics. The gold and silver occur chiefly along the borders of certain diorite bodies.

Digitized by Google

During the Christmas holidays Professor Jaggar went to Ottawa to attend the meeting of the Geological Society of America. He was the guest of Dr. R. A. Daly, of the Geological Survey of Canada.

Professor Johnson, during the recess, attended the meeting of the Association of American Geographers in New York, and presented two papers as follows: (1) Drainage Modifications in the Headwaters of the Chattahoochee and Savannah Rivers; (2) Map studies for engineering students: The Classification of Contour Maps on a Physiographic Basis (illustrated with lantern views and maps).

Professor Crosby, who has been engaged during the autumn in professional work in Alaska, returned to the Institute late in January.

PHYSICS

Several changes have been made in the lecture course in General Physics, and others are in contemplation. How extensive these may be will be largely determined by the practical results of the entrance requirement in Physics, which went into effect at the last examination for admission to the Institute. Independently of this, however, it has seemed expedient to try the experiment of greatly abbreviating the treatment of certain topics in the required course, and establishing at the same time brief optional courses in which these subjects may be treated more fully than would be desirable in the former. Last spring ten such lectures upon the phenomena of the electric discharge in vacua and radio-activity were given by Professor Cross, open to students of all years above the first. No examinations were required of those attending these lectures. It is in contemplation to offer a like course upon electrical oscillations, Hertz waves, and allied phenomena. If this is done, the two courses will probably be given in alternate years.

In the lectures upon Heat in the third year, now given by Professor Norton, considerable attention is devoted to the applications of heat in the arts, especially in the matters of cold storage, the maintenance and control of furnace temperatures, the critical examination of fuels, and the heat problems relating to fire prevention.

A journal club has recently been established in the department, in care of Dr. Wendell, meeting once in two weeks for the considera-

Digitized by Google

tion of current literature. It is open to instructors and advanced students.

The department has procured a number of valuable pieces of demonstration apparatus during the past summer, especially in illustration of high frequency currents, electrical oscillations, and electrical waves. In particular the device of Seibst for demonstrating the tuning of a circuit to different harmonics is worthy of notice. The collection of vacuum tubes has been increased, and further additions have been made for illustrating ionization of gases and radioactivity. From the gift of Dr. Jacques there have been purchased for the workshop a bench-lathe and a vertical drill.

Much new apparatus has been added to the laboratories. In the Electro-chemical Laboratory the following are especially worthy of notice: a new type of Lippmann electrometer designed for measuring very small voltages, apparatus designed for the investigation of gas batteries, for solubility-determinations of very insoluble salts, glass thermostat and accessories for viscosity determinations, and a new heating system for maintaining the electroplating baths at any desired temperature.

The Optical Laboratory has received the following among other new instruments: a "flicker" photometer, a Lummer-Brodhun contrast photometer, a Mayer heliostat, and an air interference table with variable thickness of air film.

The special appropriation made by the Executive Committee for more completely equipping the Laboratory of Heat Measurements has allowed much needed improvements to be made.

Practically, all apparatus for regular class work has been duplicated, including combustion bombs, a Parr calorimeter, thermoelectric and resistance pyrometers, the optical pyrometers, and the comparator. A number of new pyrometers, including a recording instrument, have been purchased. A refrigerating plant for the study of heat insulating materials used in cold storage, and one also for the study of specific heats, etc., at cold-storage temperatures are about ready. A large and accurate apparatus for the measurement of the effectiveness of different steam-pipe and boiler coverings has been built by the Insurance Engineering Experiment Station

Digitized by Google

for commercial testing, and is now in use by several students in connection with their thesis work.

The conflagration loss of the last year has led to a more careful consideration of methods of preventing spread of fire, and a very exhaustive examination of the relative fire-resistance of different kinds of roofing has been going on in the laboratory for some months. During the last summer a series of tests, attended by representatives of the insurance interests and the building trades, was made on fire-proof woods now in use.

CHEMISTRY AND CHEMICAL ENGINEERING

The department has had occasion during the past few months to realize the increase in the demand for able men to assume positions of responsibility as teachers of technical chemistry in our institutions, and also for men who are capable of directing the work of the research laboratories which are being established by various industries for the better investigation of the scientific problems involved in their daily practice. It has been at once a matter for congratulation and embarrassment that several members of the instructing staff of this department should be regarded as eminently fitted to fill these positions, and it is the Institute's good fortune that the attractions have not, with one exception, been sufficient to induce the instructors to leave us.

In August last Dr. Walker was asked to become the head of the Chemical Department of the Carnegie Technical School at Pittsburg, under tempting conditions. Early in the fall Dr. John W. Brown, Instructor in Theoretical Chemistry, was offered, and has now accepted, a position in which he will have charge of the research laboratory of the National Carbon Company at Cleveland, Ohio. Still more recently Dr. Henry Fay was offered the directorship of a laboratory in connection with the Westinghouse Electrical Company at Pittsburg, which is to be also essentially a laboratory of research. Of these instructors Dr. Brown will, to the regret of the Department, leave the Institute to assume the duties of his new position on January 1, and his work will, for the remainder of the present year only,

Digitized by Google

be distributed among other members of the instructing staff. It is a satisfaction to state that the flattering offers made to Professors Walker and Fay did not lead them to leave the Institute. Dr. Walker, through his contact with technical chemistry and his training and aptitude as a teacher, is singularly fitted for success in his work with us, while Dr. Fay is by training and experience also unusually well equipped for his responsibilities in the care of the instruction of the large number of students in analytical chemistry; and both are eminently successful teachers.

It is interesting to note that the establishment of these laboratories of technical research has been greatly stimulated as the result of the marked success attained by Professor W. R. Whitney, in the laboratory of the General Electric Company at Schenectady. More complete fitness for the work in hand is rarely shown than is evident in the case of Dr. Whitney, and it is gratifying to find that the results of his untiring labor are receiving recognition.

Dr. Walker has within two months retired from the firm of Little & Walker, of which he has been a member since 1901. He will continue to utilize a portion of his time for expert consultation work in technical chemistry and chemical engineering, and has recently accepted an offer to give a course of three lectures a week throughout the year on Technical Chemistry at Harvard University, a course formerly given by Professor Sanger. This is a University course, open to college students as well as those of the Lawrence Scientific School. Professor Walker has also been appointed a member of the Organization Committee of the Sixth International Congress of Applied Chemistry, to be held at Rome in April, 1906.

As a further evidence of the demand for teachers of technical chemistry and chemical engineering comes the appointment of Mr. J. C. Dickerman (X., '95) as Assistant Professor of Chemical Engineering at the University of Wisconsin. Mr. Dickerman has been associated with the Merrimac Chemical Company for a considerable time, but has found himself increasingly interested in a teacher's work. He will take with him into this work a considerable fund of experience, and enters upon it with apparent promise of success. Mr. R. J. King (III., '03) has assumed Mr. Dickerman's responsi-

Digitized by Google

bilities at the Merrimac Chemical Company's works at South Wilmington, while Mr. G. V. Sammet (V., '01) who took his Ph.D. degree at Leipsic last May, has entered the employ of the same company, in part at least to carry on work of the general nature of research.

Drs. R. W. Balcom and S. C. Lind, who completed their work at Leipzig and Heidelberg, respectively, in the last summer semester, are now at Ann Arbor, both holding instructorships at the University of Michigan, where they are associated with Professor S. Lawrence Bigelow (V., 95), and are reported as successful in their work.

Mr. R. S. Williams, Assistant in Analytical Chemistry last year, is studying with Professor Tammann at Göttingen. Many of the German universities have recently adopted stringent regulations regarding the admission of foreigners, and also regulations regarding American students from other than a limited number of our institutions of learning, which are likely to cause embarrassment to Institute students going abroad for study. An effort will be made to secure a better appreciation on the part of German authorities of the work done by students of the Institute.

The series of six lectures on the "Historical Development of Chemistry," by Professor Ostwald, mentioned in the October REVIEW, have been given on successive Thursdays, beginning November 9. The first lecture was given in English, the remainder in German. The audience has included, besides many of our own students and instructors from various classes and departments, representatives of a number of other institutions. Professor Ostwald has sketched the development of the most important chemical concepts in a way which was interesting and suggestive, both because of new standpoints from which to view past attainments and because of suggestions as to the directions in which effort should be made to advance the science in the future.

In the early fall Drs. Talbot and Blanchard published a book on the "Electrolytic Dissociation Theory," an elementary treatise, in which they have sought to bring together in a compact and simple form the facts which are generally accepted as supporting this theory, and to show the application of the theory to a few typical cases of

Digitized by Google

chemical change. The book is being used in connection with the instruction in Inorganic Chemistry, and was prepared for this purpose primarily. This theory has assumed so much importance in chemical science that it must be considered as equally a matter for consideration with the older theories, and this book is proving to be of assistance by placing the material in the hands of the student in suitable form for home study.

Mr. G. W. Rolfe's excellent book on "The Polariscope in the Chemical Laboratory" is proving helpful in the instruction in Sugar Analysis and kindred optical methods. The title of the book was wrongly given as "Methods of Optical Analysis" in the July REVIEW.

Mrs. R. H. Richards is to give a series of six lectures on "Sanitation" at Cornell University in January. Besides the third volume in the "Cost of Living Series," on the "Cost of Shelter," she has also written a pamphlet on "Healthful Homes," issued by the Health Education League. Mrs. Richards and Mr. Taylor have under investigation methods for the determination of chlorine in water and a field method for dissolved oxygen in water; and others are investigating standard methods of water analysis under Mrs. Richards's direction.

Dr. E. C. Levy, who worked for some time in the Chemical and Biological Departments, has recently been appointed City Bacteriologist of Richmond, Va., and has made reports upon the milk supply and the pollution of the James River.

Professor Talbot has been appointed a member of the Committee on Standard Methods of Testing of the Society for Testing Materials, and of the Sub-committee on Chemical Tests, and has recently attended meetings of this committee and the Board of Examiners in Chemistry of the College Entrance Examination Board at New York. He has also been elected a member of the Executive Committee of the New England Association of Chemistry Teachers.

Professor Gill is a member of the Committee on Standard Tests for Lubricants of the Society for Testing Materials.

Mr. G. R. Taylor has charge of the instruction in chemistry in the evening schools of the city, and is assisted by Mr. A. L. Smith.

Digitized by Google

MODERN LANGUAGES

The number of students who failed to meet the entrance requirements in foreign languages made it necessary to form two sections in French I. and three in German I.

The courses in French III. and German III. have been reduced from three hours to one hour per week, and made third-year options.

The number of students in Spanish is larger than ever before. There are six sections in this language, reciting to Mr. Erhardt, Mr. Lenz, and Professor Bigelow. A section was formed in Italian, but had to be abolished to provide the necessary instruction in Spanish, now the favorite third-year option.

Experimentation with the graphophone has been continued. While the department sees some usefulness in this machine, it has doubts as to its durability, and consequently as to the advisability from an economical standpoint of investing in it to any considerable extent.

Professor Vogel, who has been chief reader in German for the College Entrance Examination Board during the years 1904 and 1905, has been appointed one of the three examiners to prepare the questions in German for 1906. The marking of the papers takes place in June at Columbia University. The professor this year edited and published a German reader, entitled "Geschichten aus der Tonne," by Theodor Storm, and is now engaged in the preparation of a scientific German reader. Mr. Dike is preparing a French Scientific Reader.

On the 9th of November Professor Bigelow read a paper before the Boston Group of the New England Modern Language Association on "Modern Language Teaching with Special Reference to Pronunciation and Conversation," in which he pleaded for more oral work, with less English.

NAVAL ARCHITECTURE

The Department of Naval Architecture has planned and started a long lecture course on subjects concerned with marine construction. In their particular lines of marine engineering the lecturers are all well grounded and the subjects are both interesting and

Digitized by Google

varied. The fundamental principles of naval architecture will be talked upon, and some of the lectures will deal with methods of ship designing, the construction of floating and graving docks, and the surveying of ships for repairs.

EXTRACTS FROM THE ANNUAL REPORT OF THE PRESIDENT AND TREASURER OF THE CORPORATION, DEC. 13, 1905.

Extracts from Report of the President

... No new buildings have been erected during the past year, with the exception of the new Gymnasium building on the Garrison Street land adjoining the Mechanical Laboratories. . . . During the last year there have been no changes in the Corporation and those in the Faculty have not been numerous. . . . The student registration of this year as compared with that of last year shows a diminution of approximately one hundred names; that for last year being fifteen hundred and sixty-one, that for the present year fourteen hundred and sixty-six,—a loss of ninety-five names. . . . It is interesting to note that this diminution comes entirely from near-by States, namely from the States of Massachusetts and New York, for New York next to Massachusetts has always been the chief source of students for the Institute of Technology. . . . On the other hand, there has been a gain instead of a loss from nearly all other States, including those in the West, like California, Michigan, Illinois, Missouri, and Minnesota, in which the State Universities are making the most rapid gains.

These losses and gains are to be explained, to my mind, on the following ground: local students are those who feel the most acutely a raise in the tuition fee or in the expense of student life; and this diminution in attendance may be referred to their efforts to secure cheaper tuition. The reduction in attendance of students from New York is doubtless due in similar manner to the attractions of Cornell University, where very great facilities are being offered engineering students at a less cost than in Boston. On the other hand, an increase in tuition does not affect students from abroad in the same way, because such students, as a rule, must have fair resources in order to attend a distant institution at all. . . .

The number of graduate students has increased from one hundred and eighty-one last year to two hundred this year. Twenty-eight of these are candidates for advanced degrees.

Students from foreign countries number sixty-six, compared with fifty-four of last year. These come from twenty-five countries. . . .

Digitized by Google

[There follows a history of the Harvard Technology Alliance, including, for the first time in print, the Tentative Plan of Nov. 14, 1904.]

. . . A decision was handed down by the Supreme Court on the sixth day of September, which denied to the Institute any right of this property in fee simple, and specifically enjoined it from either selling or building over the two-thirds area not now occupied. This decision made the carrying out of the agreement entirely impossible for many years to come, unless there should be provided promptly a sum of money approximately equal in amount to the value of the land on Boylston Street. As the probability of raising this sum seemed indefinite, and as it was undesirable to leave the matter in a state of uncertainty, the Corporation of the Institute at its meeting on October 11, 1905, instructed the Executive Committee to indicate to the Corporation of Harvard University the fact that this body finds itself unable to go on with the plan. The correspondence which closed this matter is given below:—

PRESIDENT CHARLES W. ELIOT,
HARVARD UNIVERSITY, CAMBRIDGE, MASS.

My dear President Eliot:—

I am directed by the Corporation of the Institute of Technology to communicate to you the fact that, in view of the recent decision of the Supreme Court of the State in the case of John Wilson *et al.* vs. The Massachusetts Institute of Technology, the Corporation of the Institute finds it impossible to proceed with the plan of co-operation which was considered at its meeting of June 9.

In communicating this fact the Corporation desires at the same time to express its appreciation of the fairness and courtesy of the Corporation of Harvard University in our common effort to solve a difficult question.

I am, Very sincerely yours,

HENRY S. PRITCHETT,
President.

OCTOBER 11, 1905.

At a meeting of the President and Fellows of Harvard College in Boston, Oct. 30, 1905 the following vote was passed:—

Voted, That the committee of conference appointed by this Board May 16, 1904, at the instance of the Corporation of the Massachusetts Institute of Technology be hereby discharged; and that the President be requested to express to the members of the two committees of conference the high appreciation by the President and Fellows of the foresight, good judgment, and public spirit of which the committees' project for a close affiliation between the Institute and the University gives evidence, and the regret of the President and Fellows that the project has been brought to naught by the recent decision of the Supreme Court, which makes it impossible for the Institute to place itself beside the University.

Voted, To acknowledge hereby the receipt of notice from the Corporation of the Massa-

Digitized by Google

chusetts Institute of Technology that the negotiation with this Board started by the Institute May 4, 1904, is at an end.

A true copy of record. Attest:

JEROME D. GREENE,
Secretary to the President.

I have called attention in my two last annual reports to the desirability of outlining as definitely as possible the future policy of the Institute in respect to a location and to its intellectual and educational aims. The proposed plan of alliance with Harvard University was such an effort: it was definite, and was framed to meet a policy which contemplated one great school of technology rather than two. That plan having been dismissed, it remains to turn heartily and earnestly to the development of the Institute in its present site; for it seems to me clear that the decision of the Supreme Court, which made the alliance impossible, has also settled the question of site for at least a number of years to come. We must, as it seems to me, continue to use the land on Boylston Street, and, therefore, for certainly twenty or twenty-five years, the Institute must continue where it has been in the past.

The policy of the Institute, therefore, for the next quarter century seems to me to be stated somewhat definitely in the following way:—

1. To acquire additional land in the immediate vicinity of the present Engineering Buildings, sufficient to provide for the normal development of the next quarter century.

2. To provide money for endowment and for building so as to make this site the seat of an effective and well-equipped group of engineering buildings.

3. To develop on our Brookline site, adjoining the Athletic Field, dormitories for such students as may desire to avail themselves of a community life; these dormitories being constructed on the plan of furnishing simple and inexpensive rooms for men of small means, as well as more ambitious rooms for those who care to pay for them, for the purpose of bringing men together on a democratic plan.

4. To develop with sound judgment and true perspective in education the intellectual work of the Institute. And while this is put last, it is, of course, first in importance and significance in any institution. The quickening of the means of instruction, the constant examinations of the courses to the end that they may serve best the student's needs, a frequent over-hauling of requirements so as to preserve a fair perspective of student work,—these are the most important matters of policy which an institution has to settle, and these, of course, lie in the hands of the Faculty.

It is some such programme as this to which it seems to me the Institute of Technology should now commit itself heartily and enthusiastically.

The question of what is the best form of administration for an educational institution has received increasing attention in the last two years.

Digitized by Google

In most American institutions the administration has assumed a form much more resembling that of a business organization than is the custom in foreign universities and technical schools.

Whether this tendency is a good one or not is certainly an open question, for, however desirable it may be to secure a due sense of responsibility on the part of teachers and students, it is also true that the best intellectual results are likely to come with a larger measure of freedom. On the other hand, it is also evident that an administration in which the individuality of the teacher and of the student is conserved offers serious difficulties in the way of what may be called initiative. When a course of study or a change in the plan of organization or other important question within the institution is to be determined by the votes of a large number of men acting on their individual judgment, it is evident that the inertia of the organization must be much greater than if the power is lodged in the hands of one man or in a small body of men. Nearly all administration is a compromise between these two ideals,—the ideal of the executive officer or small committee with large power insuring well-defined responsibility throughout all parts of the organization and also power of initiative, and the other ideal of individual freedom of action based on the consent of all members within the organization and necessarily, therefore, acting slowly, and without great initiative.

It seems clear to me that the idea of the individual freedom of the professor is a fundamental condition in any institution of learning. It also seems to me equally clear that this freedom must extend in some measure at least to the student, and that also some means must be had to increase the power of initiative of our educational organizations. Our institutions of learning are conducted on the intellectual side wholly by the Faculties. These have now become quite large in the larger institutions, and, when we introduce the ideal of the preservation of individual freedom and combine it with the plan of organization which assigns only a single professor to a single subject, we preserve a system which has the faults of both plans of organization. It remains, perhaps, for the American professors themselves to suggest some means of administration which, while preserving the individual freedom of the professor, may at the same time give to educational organizations somewhat of the initiative which we find in business organizations.

A partial step toward this result would be reached in the Institute if the separate Departments of professional study were considered as schools and the determination of their courses of study left more fully to these

Digitized by Google

separate Faculties. In fact, the name Institute would most fitly indicate a congeries of schools; and it ought to be possible to administer the School of Architecture, of Civil Engineering, and the like without losing the trust which now exists between Departments having these names, while leaving to each larger initiative. . . .

The athletic life in the Institute of Technology represents, in my judgment, a sane and normal development. There is a very hearty athletic spirit and this shows itself principally in the cross-country runs, in the track team, and in the other events in which the individual can most easily enter. . . . When one considers in how great measure the athletic development in our colleges and universities has displaced scholarship, the present situation in the Institute of Technology is one in which there is a certain amount of satisfaction. In the Institute to-day athletics remains still a sport, and it has become neither an occupation nor a business. . . .

EXTRACTS FROM REPORTS OF DEPARTMENTS *

Department of Electrical Engineering

. . . The matter of the course scheme has been considered by the Department with great care and at considerable length. The conclusions reached are that a radical simplification is most desirable, in fact is absolutely necessary, since the students are working under pressure on too many subjects. The time for the digestion and assimilation of what is presented to them and for clear and careful thinking must be very considerably increased. This can be brought about by the elimination of certain work of lesser importance and the devotion of greater time to exercises, both written and oral, under the immediate supervision of the instructing staff.

The reports of students in connection with the excursions to the various power plants in Boston and vicinity have shown a very great gain in clearness of expression and logical arrangement, due in no small degree to the co-operation of the Department of English in this particular line of work. . . .

Department of Biology.

. . . A sudden, unexpected, and unexplained decrease in the number of students in the Department, in the face of a larger demand than ever for its graduates, and in spite of other favorable conditions, occurred at

* Much of the interesting matter in these reports has been already covered by the "Department Notes" in the REVIEW, and therefore is not reproduced.

Digitized by Google

the opening of the present session. This is perhaps due partly to the radical change of the Course in General Studies, from which good students have frequently been recruited; partly to the diminishing number of women studying at the Institute, but mostly to causes as yet obscure. It has always been difficult to convince first-year students desiring to pursue the course, or to persuade their parents, that biology is a really practical subject, although students in other courses who have reached their third and fourth years often report that, if they had understood, in their first year, what the course in biology is and what it leads to, they would have elected it without hesitation. Against this difficulty we shall doubtless long have to continue to struggle, in spite of the fact that we are, and for several years have been, unable to meet the demand for graduates in biology, owing to the limited number electing the course, and in spite of the fact that those who have taken it have readily found remunerative employment and promotion. In a technological school like the Institute, some pains will doubtless have always to be taken to bring strongly before the students the opportunities offered by the more scientific as compared with the more technical courses. It seems desirable that some way should be found to make it more generally known than it is, both by the student community and by the public at large, that the courses at the Institute in Physics, Chemistry, Biology, and Geology are no less likely to lead to honorable and self-supporting careers for those who may elect them than are those in Engineering. . . .

Reports upon biological analyses, inspections, or investigations are often sought and are often important for municipalities, manufacturers, corporations, or individuals; and yet it is obviously impossible for officers of the Institute to make such examinations and reports in their official capacity, or, if they are extensive, upon the Institute premises. To meet similar needs, there have sprung up in the neighborhood of some educational institutions private laboratories, owned and directed by the officers of those institutions, but otherwise not connected with them. The numerous demands made upon the Biological Department for such aid as is described above, and the desirability of meeting these demands, have induced Assistant Professor Prescott to open during the summer a private laboratory of Industrial and Sanitary Biology and Chemistry in which such outside work can be done. Professor Prescott's laboratory bears the name of The Boston Bio-chemical Laboratory, and is already in successful operation under his direction with the aid of two assistants technically trained at the Institute. It is believed that by the inauguration of this laboratory a real public

Digitized by Google

need will be satisfactorily met, while opportunity will also be furnished in it for certain investigations in Industrial Biology and Bacteriology which could not be readily undertaken upon the premises of the Institute. . . .

Department of Physics

. . . A most important advance which has just gone into effect in connection with the instruction in physics is the requirement of a certain knowledge of that subject of all students entering the Institute. Too much ought not to be expected from this, but it is hoped that the possession of a certain amount of elementary knowledge of the subject by the students at the beginning of our more extended course will allow a broader and in some respects more philosophical treatment than has hitherto been practicable. . . . It will allow illustrations from all branches of physics to be introduced to make clear the earlier portions of the course, and will make possible from the outset the use of certain assumptions the truth of which the student will at least recognize, even if he does not possess a clear perception of their derivation or extent.

Department of Naval Architecture

. . . The Course for Naval Constructors has been somewhat changed, mainly following changes in the Course in Electrical Engineering, so as to take advantage of improvements in that Course. It may be noted that two classes of naval constructors have already been graduated from the Institute, and that twelve constructors now in active service have taken our Course. There are now seventeen constructors under instruction, six having been assigned to the Course this fall. In addition two private students are taking the parallel work of our Graduate Course in Naval Architecture which, like the Course for the constructors, leads to the master's degree. . . .

Department of Drawing and Descriptive Geometry.

. . . The special difficulty which the first-year class has in mastering Descriptive Geometry should again be pointed out. This difficulty appears to be due to lack of imagination on the part of the student, coupled with insufficient time for the subject and too little individual teaching. . . . Perhaps in no other subject is the want of preparation so keenly felt. The remedy appears to be an entrance examination in Projections, which might also include a requirement in elementary instrumental execution. As

Digitized by Google

bearing upon such a requirement may be quoted a recent remark of the State Agent of Drawing: "When the Institute requires an entrance examination in drawing, the demand will undoubtedly be met." ...

Department of English

... During the present term an application of what may be called the laboratory method is being made to the first-year English of the first term. An hour of the time hitherto given to preparation has been added to a recitation period, to make a period of two hours. This is used for the writing of a fairly long theme in class, under the general supervision of the Instructor, the work being required within a given time. This method trains the student in readiness and promptness, and is in the end a time-saving device in that it makes impossible all dawdling, doubting, and indecision. It is too soon to speak with finality of the value of this laboratory method; but the results thus far are most promising.

In the matter of entrance examinations, the English Department has taken a new step by breaking away definitely from enforced compliance with the list of the Commission of Colleges in New England. The enthusiastic approval of this move, as expressed in letters received from the heads of fitting-schools, shows that it is at least a step in the direction in which the best thought is moving....

The Medical Adviser

... The work of the Medical Adviser, which was begun in 1902, increased rapidly and steadily during the years 1903 and 1904 as the students became accustomed to the new arrangement and took advantage of it.... There is no abuse of the medical office by the students. Those who ask for advice have a definite ailment. It seems characteristic of the men that they do not waste time over imaginary ills. The practice of asking the Medical Adviser for excuses from class-work without sufficient reason which is sometimes met with in our colleges, is practically unheard of at the Institute.... On the other hand, occasionally a man is found, who, in his enthusiasm for work, does not take very good care of himself, neglects physical exercise, and cuts short his sleep. These mistakes in hygiene are not the necessary consequences of the Institute course, but rather the results of the student's own carelessness or poor judgment as to how to get the most out of himself....

Digitized by Google

The Libraries

The number of gross accessions to the libraries of the Institute during the year 1904–05 is 4,915. The list of periodicals and other serial publications taken by the Institute has been increased during the past year by 17, making the total number now currently received 961.

The Registrar

... The Faculty Committee on Undergraduate Scholarships, at its annual meeting for the awards for the current year, entertained two hundred sixty-six applications for aid. One hundred eighty-seven awards, amounting in all to $23,425, were made. Thirty-four of these awards were replaced wholly or in part by State aid, to total amount of $3,950. The number who made applications for State aid and did not ask for Institute aid was fifty-seven. This makes a total of three hundred twenty-three applications for Scholarship aid. The fifteen State awards to those who received no Institute assistance, added to the one hundred eighty-seven Institute awards, gives a total number of two hundred two students who are receiving scholarship assistance....

EXTRACTS FROM REPORT OF THE TREASURER

For Year ending Sept. 30, 1905

The most striking feature in this year's report is the large reduction in the deficit. This has been brought about mainly by the following changes:—

There has been an increase in students' fees of about $23,000, and at the same time a reduction in other items, in round numbers, as follows: in repairs, $2,000; insurance, $2,400; fuel, $2,500; electricity, $600; department supplies, $21,000; and in the St. Louis Exposition account, about $3,000.

To offset this, the salary account increased $6,000, and there were additions to some other items, making the net result a deficit, in the current expense account for the year, of $10,582.32, instead of $55,405.66 for last year; a decrease of $44,823.34....

The following legacies and gifts have been received:—

From the estate of Mrs. Edna Dow Cheney, $13,741.66 as a fund for the benefit of the Margaret Cheney Reading-room. With this legacy came a portrait of Miss Margaret S. Cheney. Those who knew Miss Cheney

Digitized by Google

testify to the excellence of the likeness, and it is most appropriate that this work of art should adorn the room which is itself a memorial to her. For the Sanitary Research Laboratory Fund, $5,000 from the same anonymous friend who has made the previous payments for this purpose. From the estate of the late George B. Upton, $5,000. From Lucius Clapp, Esq., for scholarship purposes, stock valued at $4,900. From the estate of Susan E. Dorr, in addition to previous amounts, $1,790.07. From Charles G. Weld, M.D., for the Department of Naval Architecture, $1,543.31. For the Physico-Chemical Research Fund, the trustees of the Hale Fund gave $1,000, and Samuel Cabot, Esq., $200. Mr. Cabot also gave $1,000 to constitute the Cabot Medal Fund. $1,000 were given by William W. Jacques, Ph.D., for the Physical Department, and $500 by an anonymous friend for salaries. From Mrs. Henry Pickering $350 were received for the Department of Topographical Geology, and Mrs. William B. Rogers contributed $208.50 for the purchase of periodicals, the branch of the library for which she has done so much in the past. . . .

Digitized by Google

THE UNDERGRADUATES

INSTITUTE COMMITTEE

The officers for the current year are: president, M. A. Coe, '06; vice-president, J. H. Leavell, '07; secretary and treasurer, H. A. Rapelye, '08.

CONVOCATIONS

The first convocation of the year was held in Huntington Hall on November 23. Dr. Henry Van Dyke, professor of English at Princeton, gave a fine address, using as his text the story of the young men in the Book of Daniel who "would not defile themselves with the king's meat."

At the second convocation, on December 22, Dr. Booker T. Washington gave one of his characteristic, telling addresses, to a crowded audience.

PROFESSIONAL SOCIETIES

Civil Engineering Society.—The society has thus far held four regular meetings. The first one, on October 13, was addressed by Professor Swain, who took as his subject, "Why do we come to the Institute?" Professor Allen, with the subject, "The Relation of an Engineering Training to Business Life"; and Professor Porter, who spoke upon the sequence, "Adopt, Adapt, Adept." At the second meeting, November 3, Mr. H. K. Barrows, '95, now in the Hydrographic Office of the Geological Survey, spoke on "Hydrographic Work in New England."

The third meeting had as its speaker Mr. William P. Gerhard, whose topic was "Some Water Supply Problems."

The fourth meeting, on January 4, was held at the Technology Club, and was addressed by Mr. W. S. Johnson, '89, assistant engineer of the Massachusetts State Board of Health.

Mechanical Engineering Society.—At the first meeting, held at the Union on October 17, Mr. Frank B. Gilbreth gave a detailed

Digitized by Google

account of the process and machines used for mixing concrete. The meeting on October 20 was addressed by Mr. Allen, of the Harrison Foundry and Machine Company, who gave an illustrated lecture.

Mining Engineering Society.—The first meeting, held at the Union October 12, had as its speaker Mr. J. H. Batcheller, '00, who spoke on "Cyaniding of Gold Ores." The meeting of November 22 took the form of a discussion of "Summer Work." The meeting of December 13 was addressed by Professor William P. Blake, of the School of Mines, University of Arizona, upon the subject of "Education in Mining."

Architectural Society.—The regular monthly smoke talk of the society on December 4 had as its speaker Mr. R. C. Sturgis, who emphasized the importance of being able to draw rapidly and accurately.

Chemical Society.—The first meeting, on October 25, was addressed by Professor Talbot, upon the subject "How our Chemical Society can be of Use to us." The smoker of November 21 had as its speaker Dr. Henry Fay, whose topic was "The Theory and Practical Uses of High Speed Tool Steels."

Electrical Engineering Society.—At the meeting of the society on November 2 Dr. Frank B. Jewett spoke on "Some Limitations of Long Distance Telephoning."

THE CLASSES

1906.—The annual dinner of the class was held at the Union on January 3, Professors Swain and Sedgwick being the principal speakers. At this dinner the result of the class elections was announced as follows: H. C. Henrici, first marshal; C. F. W. Wetterer, second marshal; H. L. Williams, third marshal; C. T. Bartlett, L. G. Blodgett, G. W. Burpee, M. A. Coe, S. C. Coey, W. F. Englis, E. D. A. Frank, G. M. Henderson, A. W. Hertz, T. L. Hinckley, B. R. Honeyman, A. H. Keleher, W. J. Knapp, J. Lage, J. T. Lawton, Jr., M. T. Lightner, L. F. Mesmer, R. R. Patch, J. H. Polhemus, G. C. Simpson, P. B. Stanley, H. A. Terrell.

Digitized by Google

1908.—The result of the class elections is as follows: president, W. E. Weinz; vice-president, A. W. Heath; secretary, H. Webb; treasurer, W. A. Adams; Executive Committee, F. J. Friedman and B. L. Gimson; Institute Committee, G. T. Glover and H. A. Rapelye.

1909.—The result of the class elections is as follows: president, M. R. Scharff; vice-president, A. Campbell; secretary, W. W. King; treasurer, H. E. Whittaker; clerk, S. S. Bundy; directors, K. D. Godfrey, P. M. Wentworth; Institute Committee, M. Belcher, W. F. Jones.

CLUBS AND SOCIETIES

Musical Clubs.—The annual winter concert and dance was held on December 20 at the New Century Building. Over six hundred were present at the concert, and the matrons of the dance which followed were Mrs. Peter Schwamb, Mrs. Harry E. Clifford, Mrs. Arthur G. Robbins, and Mrs. Frank P. McKibben.

Technology Band.—The band this year is under the direction of C. W. Kenniston, '08, and thus far has a membership of about twelve.

Walker Club.—By the courtesy of the Technology Club the Walker Club gave a reception there, on October 27, to the graduates of other colleges at the Institute. President Pritchett, President Loring of the Walker Club, President Guy Lowell of the Technology Club, and Acting Dean Merrill made short speeches.

Civic Club.—The discussion at the meeting of November 10, held at the Tech Union, was upon "The Relative Advantages to the United States of Protection and Free Trade."

Chess Club.—It has been voted that the club join the Metropolitan Chess League.

British Empire Association.—The first dinner was held at the Union on November 15. Twenty-eight of the active members were present besides the guests of the evening, who were the three honorary members, Recorder Wells, S. Gunn, M. I. T. '05, and T. Hasejawa, '09.

Ohio Club.—The membership this year is sixteen. The officers are as follows: M. J. Gibbons, Jr., '06, president; S. R. Miller, '07,

Digitized by Google

vice-president; L. E. Stone, '06, secretary; P. S. Schmidt, '06, treasurer; and W. H. Kiefaber, '09, sergeant-at-arms.

Pennsylvania Club.—The first dinner, at which C. H. Shapleigh presided, was held at the Union, December 12.

Texas Club.—The first dinner of the year, held December 6, was attended by fifteen men.

Exeter Club.—The first dinner of the year, held at the Union, on October 13, was the occasion for initiating the Freshmen members.

Mechanic Arts High School Club.—At the meeting held January 5 this new club was established, with the following officers: E. O. Hiller, assistant in mechanical engineering, president; O. G. Fales, '07, vice-president; R. B. Weiler, '08, secretary-treasurer; W. J. Cady, '06, A. F. Stevenson, '07, H. S. Osborne, '08, and J. W. Nickerson, '09, executive committee.

Research Laboratory of Physical Chemistry.—The first annual dinner was held at the Hotel Nottingham the last week in December. Professor Ostwald, Professor Jones of Johns Hopkins University, and the instructors and students directly connected with the laboratory were present. Venison was furnished by two of the students, as the result of a hunting trip in Maine. Professors Talbot and Noyes both spoke on pertinent questions.

Sigma Xi.—The various classes have, by vote, indorsed the proposal to establish a chapter at the Institute. This fraternity holds a somewhat similar place in technological institutions to that held by the Phi Beta Kappa in colleges of arts.

Y. M. C. A.

On September 29 the Technology Y. M. C. A. gave a reception, as usual, to the Freshmen at the Tech Union, in order to introduce the young men to one another and to the various undergraduate activities.

The officers of the Tech Y. M. C. A. for this year are as follows: president, Harvey B. Orcutt, '06, Student House, 240 West Newton Street; vice-president, William Green, '06, Tech House, 138 Eustis Street, Roxbury; secretary, D. G. Robbins, '07, 68 West Rutland

Digitized by Google

Square; treasurer, W. H. Trask, Jr., '06, 237 Beacon Street; chairmen of committees: Meetings, George W. Burpee, '06, Student House; Membership, H. H. Bentley, '08, 424 Massachusetts Avenue; Bible Study, F. O. Adams, Jr., 131 Addington Road, Brookline; Settlement Work, William Green, '06, Tech House; Missionary, W. H. Medlicott, '08, 217 Newbury Street; Church Relations, J. R. Rehn, '06, 54 The Fenway; Social, P. N. Critchlow, '06, Student House; Music, K. W. Dyer, '08, Student House.

The work of the association for the coming year will include, among other things, the continuance of the activities at the Student House, 240 West Newton Street, where about fifteen of the association men live; a series of weekly meetings, on Thursdays from 1.30 to 2 P.M., on live topics of the day (led by members of the Faculty, lawyers, ministers, and business men) and courses in Bible study.

At the mass meeting held January 5 in Huntington Hall, Mr. Fred B. Smith, secretary of the International Y. M. C. A., spoke on "Profit and Loss."

TECH UNION

President Pritchett has named the following men for the House Committee of the Tech Union: Harold V. O. Coes, '06, chairman; John H. Leavell, '07; Harry Webb, '08, E. A. Hunt, '09. In view of the resignation of President Pritchett's secretary, Mr. A. LeF. Derby, which took effect on January 1, certain changes in the administration of the Union have been necessary. The Union will be under the general charge of Bursar Rand. Arrangements for smokers, class dinners, etc., will be made with Mr. Leonard T. Bushnell, in the Registrar's office. The Saturday night *Kommers* will be under the direction of the House Committee.

Early in December the plan was begun of serving medium priced lunches at the Union from twelve to two each day. This is largely to accommodate the many men at the mechanical laboratories who do not find it possible to get down to the regular lunch room.

The first *Kommers* of the winter was held on Saturday night, December 9.

Digitized by Google

One hundred and fifty men were entertained by Mrs. Pritchett at the Union Christmas evening. Mrs. Waldo Richards gave some very entertaining readings. The men then gathered about the big Christmas tree, and were presented with gifts by Mrs. Pritchett. Dr. Pritchett was prevented by illness from being present.

ATHLETICS

ATHLETIC ASSOCIATION

At the first meeting of the year, October 19, the following officers were elected: president, W. J. Knapp, '06; vice-president, J. H. Leavell, '07; secretary-treasurer, O. H. Starkweather, '07.

L. Allen, '07, assistant manager of last year's track team, was elected manager of the team for the coming year.

THE FALL HANDICAP MEET

The meeting was held on Technology Field October 28.

Summary

HIGH JUMP.—First, Very, '07, 5 ft. 9 in. (handicap 5 in.); second, Holmquist, '06, 5 ft. 7 in. (handicap, 2 in.); third, Davenport, '07, 5 ft. 6 in. (handicap, 2 in.).

MILE RUN.—First, Buckingham, '06, 30 yds.; second, Beam, '07, scratch; third, Sullivan, '09, 50 yds.

HAMMER THROW.—First, Flagg, '09, 113 ft. 9 1-2 in. (handicap 20 ft.); second, Harvey, '06, 105 ft. 2 1-2 in. (handicap, 25 ft.); third, Scharff, '09, 97 ft. 1-4 in. (handicap, 15 ft.).

SHOT PUT.—First, Harvey, '06, 38 ft. 4 1-2 in. (handicap, 4 ft.); second, Friedman, '08, 36 ft. 10 1-4 in. (handicap, 6 ft.); third, Breitzke, '06, 36 ft. 2 1-2 in. (handicap, 4 ft.); fourth, Child, '08, 35 ft. 8 3-4 in. (handicap, 1 ft.)

100-YARD DASH.—First heat: first, K. W. Richards, '07; second, Gibbons, '07. Time, 10 4-5 s. Second heat: first, Todd, '08; second, Weinz, '08. Time, 11 s. Third heat: first, E. P. Noyes, '07; second, Snow, '06. Time, 11 s. Fourth heat: Ripley, '09;

Digitized by Google

second, Steele, '08. Time, 11 s. Fifth heat: first, Richardson, '08; second, Whitaker, '09. Time, 11 s.

SEMI-FINALS.—First heat: first, Todd, '08; second, Gibbons, '06; third, Richards, '07. Time, 11 4-5 s. Second heat: first, Richardson, '08; second, Ripley, '09; third, Steele, '07. Time, 10 4-5 s. Final heat: first, Richardson, '08, 6 yds.; second, Todd, '08, 4 yds. Time, 10 3-5 s.

120-YARD HURDLES.—First, Albro, '07; second, Noyes, '07. Time, 18 s.

POLE VAULT.—First, Richardson, '08, 24 in.; second, Holmquist, '06, 12 in.; third, Very, '07, 20 in. Height, 9 ft. 2 in.

HALF-MILE RUN.—First, Gimson, '07, 30 yds.; second, Sullivan, '08, scratch; third, Swett, '07, 50 yds. Time, 2 m. 2 s.

DISCUS THROW.—First, Nisbet, '09, 116 ft. (handicap, 20 ft.); second, Harvey, '06, 103 ft. 6 1-2 in. (handicap, 15 ft.); Pierce, '08, 101 ft. 1-2 in. (handicap, 20 ft.).

BROAD JUMP.—First, Richardson, '08, 19 ft. 11 in. (handicap, 12 in.); second, Gibbons, '06, 19 ft. 1 in. (handicap, 12 in.); third, Tracy, '08, 16 ft. 2 1-2 in. (handicap, 12 in.).

220-YARD DASH.—Trial Heats. First heat: first, Gram, '09, time 22 1-5 s. Second heat: first, Allen, '09, time 22 1-5 s. Third heat: Whitaker, '09, time, 22 s.; second, Smeaton, '09. Fourth heat: first, Steel, '08, time 24 1-5 s.; second, Perry, '08. Fifth heat, first, Wellington, '08, time 25 2-5 s.; second, Pierce, '08. Sixth heat: first, Moses, '09, time 25 2-5 s.; second, White, '09. Seventh heat: first, Godfrey, '09, time 25 3-5 s.; second, Flaherty, '09. Eighth heat: first, Blackburn, '08, time 26 s.; second, Luther, '07. Final heat: first, Godfrey, '09, 9 yds. (handicap, 24 s.); second, Steel, '08, 8 yds. (handicap, 24 s.); third, Wellington, '09, 6 yds. (handicap, 24 s.).

TWO-MILE RUN.—First, Callaway, '08, 50 yds.; second, Clapp, '06, 100 yds.; third, Adams, '06, 100 yds. Time, 10 m. 17 s.

440-YARD DASH.—First, Gimson, '08, 20 yds.; second, Howe, '06, scratch; third, Ruggles, '08, 15 yds. Time, 54 1-5 s.

220-YARD LOW HURDLES.—First, Albro, '07, scratch; second, Mann, '06; third, Jones. Time, 30 s.

Digitized by Google

GOLF TOURNAMENT

The fourth annual tournament of the New England Intercollegiate Golf Association, comprising teams from Amherst, Brown, Williams, and Technology, was played October 17, on the Wollaston Golf Links. The forenoon play between Williams and Amherst resulted in favor of the former, with a total of 14 holes up; while the match between Technology and Brown came off with a victory of 15 to 1 1-2 in favor of Technology.

The finish in the afternoon between Technology and Williams was a closer contest. This, in addition to the other matches won by Williams, gave that team the final round over Technology, with a score of 10 to 4, and decided the tournament in favor of Williams.

FIELD DAY

The Sophomores won Field Day by a score of 5 to 4, coming out ahead in the relay race, and tying with the freshmen in the football game.

The attendance was very good, the grand stand being well filled, as were both the bleachers. Besides this there were many people who were unable to get seats.

Harvard won the Cross Country race by a score of 46 to 32. The time was eight seconds faster than the record made by Lorenz of Tech, '05, last year.

The football game, the second event, was very loosely played.

Between the halves both the relay race and the tug-of-war were run off. In the relay race the Sophomores led from the start, and had no trouble in running their last relay, being about 60 yards or more ahead.

The Freshmen took the tug-of-war in rather easy fashion. They got the drop at the start, and by steady, consistent pulling won in 45 seconds.

FIELD DAY DINNER

The dinner was given to the participants in the Field Day by the Alumni Advisory Council on Athletics at the Tech Union, Mon-

Digitized by Google

day evening, November 13. Major F. H. Briggs, '81, chairman of the Advisory Council, presided, and the guests were Bursar F. H. Rand, Coach Mahan, and Dr. J. A. Rockwell, '96, medical adviser of the track team.

CROSS COUNTRY RACE

The Institute was represented for the first time in the Intercollegiate Cross Country Association held at Traver's Island, N.Y., on November 25. The M. I. T. won fourth place, the championship going to Cornell. The following men represented the Institute: D. Adams, '06 (Captain); C. W. Beam, '07, H. R. Callaway, '08, and C. S. Clapp, '06. They were accompanied by Coach John Mahan and Manager Starkweather, '07.

M. I. T. FENCING ASSOCIATION

At the first meeting, held November 3, the following officers were elected: J. Lage, chairman; E. M. Berliner, secretary; and L. Fournon, coach.

At the annual meeting of December 27 of the Intercollegiate Fencing Association the M. I. T. was refused admission. Four of the members,—Yale, Annapolis, West Point, and Pennsylvania—voted against the Institute, while Harvard, Cornell, and Columbia voted in favor. Because of this action the representatives of the three colleges last named withdrew, and formed a new organization, called the University Fencing League, which they have invited the M. I. T. and Princeton to join.

Digitized by Google

THE GRADUATES

NOMINEES FOR MEMBERSHIP IN THE M. I. T. CORPORATION SUBMITTED TO THE VOTE OF THE ALUMNI, JANUARY, 1906

ANDREW H. RUSSELL, '68. Student in Civil Engineering, 1865–67. Lieutenant Colonel of Ordnance, U.S.A., Washington, D.C.

1871, graduated from West Point Military Academy, number four in his class. After several years' service in the United States Cavalry, he was transferred to the Ordnance Department, and has been stationed at the various prominent arsenals throughout the country, and on special duty in the inspection of mortars and their carriages. Instructor at West Point for four years in the following subjects: natural and experimental philosophy and astronomy, mineralogy and geology, and ordnance. Chief Ordnance Officer in the Philippines immediately after the Spanish War. Has published a good many papers, including articles on "Modern Military Magazine Guns," to which subject he has given special attention.

EBEN S. STEVENS, '68. Student, 1865–67. President and Treasurer Intervale Mills Corporation, Quinebaug, Conn.

Massachusetts Senator, 1892–93. Served as expert in Kettle Brook and Blackstone River case for City of Worcester, the case involving two and one-half millions of dollars. Has served on numerous public boards, and is at present interested in several public corporations.

ERNEST W. BOWDITCH, '69. Student in Civil Engineering, 1865–69. Civil Engineer, 60 Devonshire Street, Boston, Mass.

Educated in Brookline public schools and Massachusetts Institute of Technology. In 1869 was with Burlington & Missouri R.R. as axeman and assistant engineer. With the United States Darien Expedition, January to July, 1870, as assistant geologist and assistant engineer. With Shedd & Sawyer, civil engineers, October, 1870, to April, 1871 (Boston), and did the engineering work for Robert Morris Copeland, landscape gardener. Is at present engaged in professional work, mainly landscape gardening, with collateral engineering and surveying, sanitary engineering and heavy foundations.

RICHARD H. SOULE, '72. Graduate in Mechanical Engineering. Consulting Engineer (retired). 1571 Beacon Street, Brookline.

1870, graduated A.B. from Harvard. 1872, graduated from Massachusetts Institute of Technology. 1872–75, chief draughtsman and assistant superintendent Southwark Iron Works, Philadelphia. 1875–83, in Pennsylvania R.R. service, successively as draughtsman, engineer of signals, assistant engineer of tests (all at Altoona, Pa.), division superintendent of motive power at Baltimore, Md., division superintendent of motive power at Williamsport, Pa., su-

Digitized by Google

perintendent of motive power at Columbus, Ohio, 1883–85, superintendent of motive power West Shore R.R., Frankfort, N.Y. 1885–87, superintendent of motive power Erie R.R., Buffalo, N.Y. 1887–88, general manager Erie R.R., New York. 1888–91, with George Westinghouse, Pittsburg, Pa., developing and introducing the Westinghouse Friction Buffer Drawgear. 1891–97, superintendent of motive power Norfolk & Western R.R., Roanoke, Va. 1897–99, with the Baldwin Locomotive Works, Philadelphia, abroad, and at Chicago. 1901–05, consulting engineer, New York. Now retired and living at Brookline, Mass.

FREDERICK K. COPELAND, '76. Graduate in Civil Engineering. President Sullivan Machinery Company, Railway Exchange Building, Chicago, Ill.

With the Burlington R.R. in Iowa, 1876–78, in the freight and operating department. 1880–84, with the White Breast Fuel Company, Iowa, as mechanical engineer and superintendent. 1884–93, with the Diamond Prospecting Company, Chicago, as general agent, vice-president, secretary, treasurer, and president. 1892 to the present time, president of Sullivan Machinery Company, manufacturers of mining and quarrying machinery.

CHARLES T. MAIN, '76. Graduate in Mechanical Engineering. Of Dean & Main, Mill Engineers and Architects, 53 State Street, Boston, Mass.

Three years assistant at Massachusetts Institute of Technology in mechanical engineering. One and one-half years draughtsman at Manchester Mills, Manchester, N.H. Five years engineer Lower Pacific Mills, Lawrence, Mass. One year assistant superintendent Lower Pacific Mills. Five years superintendent Lower Pacific Mills. Since 1892 has been engaged in mill engineering, and in consultation on many power plants, both steam and hydraulic. Has served the Alumni Association as member of the Executive Committee, as vice-president, and as president.

JOSEPH P. GRAY, '77. Graduate in Civil Engineering. Vice-President Boston Manufacturers' Mutual Fire Insurance Company, 31 Milk Street, Boston, Mass.

For some years after graduation was in general engineering practice in connection with private and government work. Was assistant engineer with the Locks & Canals Company at Lowell from 1880 until 1891, since which time he has been connected with the Boston Manufacturers' Mutual Fire Insurance Company as engineer, as assistant to the president, and as vice-president, which office he still holds.

FREDERICK W. WOOD, '77. Graduate in Mining Engineering. President Maryland Steel Company, Sparrow's Point, Md.

At the Massachusetts Institute of Technology, 1877–78, as assistant in the Chemical Laboratory, and in the Mining and Metallurgical Laboratory. In 1878 entered the Open Hearth Steel Department of the Pennsylvania Steel Company, and served with that company until 1891 as superintendent of blast furnaces, and as assistant superintendent, superintendent,

Digitized by Google

general manager, and vice-president of the company, which position he still holds. Was elected president of the Maryland Steel Company in 1891.

THOMAS C. DU PONT, '84. Special Student in Mining Engineering. Wilmington, Del.

President du Pont Powder Company. President Central Coal and Iron Company. President Main Jellico Mountain Coal Company. President McHenry Coal Company.

ISAAC W. LITCHFIELD, '85. Student in Electrical Engineering, 1882–84. Assistant General Manager Lamson Consolidated Store Service Company, 161 Devonshire Street, Boston.

1889–94, editor and part owner *Warwick Valley Dispatch*, Warwick, N.Y. 1894–1902, with Deering Harvester Company, Chicago, first as advertising manager, and later as assistant to the manager of manufacturing. 1902–04, general manager Acme Harvester Company, Peoria, Ill. 1904, assumed his present position. President North-western Association, Massachusetts Institute of Technology, 1899, 1900, 1901.

FREDERICK H. NEWELL, '85. Graduate in Mining Engineering. Chief Engineer Reclamation Service, United States Geological Survey, Washington, D.C.

1886–87, graduate student, Massachusetts Institute of Technology. 1888–90, with United States Arid Land Survey. 1890–1903, chief hydrographer United States Geological Survey. 1903, appointed to his present position. 1903, president Alumni Association, Massachusetts Institute of Technology.

FRANK L. LOCKE, '86. Graduate in Civil Engineering. Superintendent of Factories, Boston Rubber Shoe Co., Malden, Mass.

1887–95, in Engineering Department, city of Boston. 1895, with Boston Rubber Shoe Company, as assistant superintendent, until 1902, when he was appointed to his present position. He has served two years on the Executive Committee of the Alumni Association, and as President of the Alumni Association in 1905. He served in the Militia of Massachusetts for fourteen years, and for the last three years of this service was colonel and assistant inspector general.

HENRY SOUTHER, '87. Graduate in Mining Engineering. President and Treasurer The Henry Souther Engineering Company, 440 Capitol Avenue, Hartford, Conn.

1887–88, studying in Germany for eight months. 1888–93, with Pennsylvania Steel Company as foreman of Bessemer Department, and later in particular charge of the manufacture of special steels. 1893–99, expert and metallurgist in charge of testing laboratory for Pope Manufacturing Company. 1899–1903, consulting engineer and metallurgist in Hartford, having leased the laboratory which he had built for the Pope Manufacturing Company. 1903.

Digitized by Google

organized the Henry Souther Engineering Company to carry on his engineering business. He is also at present State chemist of Connecticut.

CHARLES NEAVE, A.M., '90. Graduated from Yale University in 1888 and Massachusetts Institute of Technology in Electrical Engineering. Member of the firm of Richardson, Herrick & Neave, 80 Broadway, New York City.

After leaving the Institute, he worked as electrical expert in the shops of the Thomson Electric Welding Company in Lynn. He then studied for two years at Harvard Law School, and received the degree of A.M. from Harvard University. He entered the law office of Fish, Richardson & Storrow in 1893, and in 1895 became a member of the present firm, successors to the above firm, and moved his office to New York.

LEONARD METCALF, '92. Graduate in Civil Engineering. Consulting Civil Engineer, 14 Beacon Street, Boston.

Upon graduating, he was associated with Messrs. Wheeler and Park, consulting civil engineers of Boston, who were owners and managers of water works, and for three years he acted as resident engineer for them, in charge of engineering construction in various parts of the United States. From 1895 to 1897 he was Professor of Mathematics and Engineering at the Massachusetts Agricultural College, and meteorologist of the Hatch Experiment Station. 1897 to date, in private practice as consulting civil engineer, designing and supervising construction of water works, sewerage, and manufacturing waste disposal plants, as well as treasurer and manager of several water and electric light plants in the Middle West.

FRANCIS WALKER, A.M., Ph. D., '92. Graduate in General Course. Department of Commerce and Labor, Bureau of Corporations, Washington, D.C.

He is the third son of the late President Francis A. Walker. In 1893 he received the degree of A.M., and in 1895 the degree of Ph.D. from Columbia University. In 1897 he was appointed Professor of Political Economy in Colorado College. In 1900 he accepted the appointment of Professor of Political and Social Science in Western Reserve University, resigning in 1902. After studying for about a year in the Universities of Munich, Vienna, and Berlin, he was appointed in the beginning of 1904 as special examiner in the Bureau of Corporations in the Department of Commerce and Labor at Washington. Has published numerous articles on political economy.

ALBERT F. BEMIS, '93. Graduate in Civil Engineering. Secretary Bemis Brother Bag Company. President Jackson Fibre Company, Jackson, Tenn. 89 State Street, Boston, Mass.

Since graduating, has been closely connected with the development of the business of the Bemis Brother Bag Company, which manufactures all kinds of cloth sacks, operating or controlling in various parts of the United States ten factories, two cotton mills, and a bleachery. He was first secretary of Walker Memorial Gymnasium Committee.

Digitized by Google

FRANCIS C. GREEN, '95. Graduate in Sanitary Engineering. General Manager Consolidated Car-heating Company, 42 Broadway, New York.

From 1895 to 1897 he was with Mr. Rudolph Hering, consulting engineer. He then went to Nicaragua as assistant engineer with the Nicaragua Canal Commission. Upon his return to the United States in 1898, he passed the examinations of the United States Navy, and was recommended for appointment as lieutenant, junior grade. In January, 1900, he was appointed general superintendent of the Consolidated Car-heating Company, and in June of 1902 became general manager, which position he now holds.

ASSOCIATION OF CLASS SECRETARIES

The ninth annual meeting of the Association of Class Secretaries was held at the Technology Club on Tuesday evening, Nov. 21, 1905, thirty-three secretaries and representatives and four guests being present. At the business meeting, which followed the usual dinner, Professor Robert H. Richards, '68, was chosen chairman for the evening, and annual reports were presented by the secretary, the Committee on Publication of the TECHNOLOGY REVIEW, the Committee on Closer Relations among Graduate Organizations, the Committee of the Association on the Technology-Harvard Alliance, and the 1905 Commencement Celebration Committee.

The report of the Committee on Publication was in part as follows:—

"A part of the year just closed was a very strenuous time for the Publication Committee of the REVIEW, as that periodical was made, by the Executive Committee of the Alumni Association, the official means of bringing the question of the proposed alliance with Harvard before the whole alumni body. This commission, among other things, involved the preparation and sending to all Institute men available of an extra number containing 231 pages, the proofs of which had to be submitted to a number of individuals and committees, and the printing of which had to be done within the space of about one week. This meant Sunday and night work at the printing-office as well as on the part of the authors and others responsible for the preparation of the matter.

The final cost of this extra number was $2,200.94, but the greater

Digitized by Google

part of this large sum was guaranteed by the M. I. T. A. A. Executive Committee, who asked and obtained substantial aid from the Executive Committee of the Corporation. The REVIEW assumed only so much of the expense as was represented by the estimated saving on the issues for July and October, which were made smaller than usual. The many important topics of last winter had rendered the January and April numbers, however, very large, so that the total number of pages in Volume VII. (including the extra Alliance number) is 713. This is seventy-five pages more than Volume VI. (itself of extraordinary size), and is two hundred pages larger than Volume IV., which may fairly be taken as a standard for the REVIEW."

During the preceding year the Association held four meetings: the eighth annual meeting Nov. 15, 1904, and special meetings, Dec. 2, 1904, March 16, and May 12, 1905. The subject receiving most consideration by the Association during the year was the proposed alliance of the Institute with Harvard University. At the annual meeting in November, 1904, the Association's Committee on the Alliance reported a method of procedure to be followed in case the plan of affiliation with Harvard were referred to the alumni for expression of alumni opinion. The committee's suggestion was adopted by the class secretaries, and by unanimous vote it was recommended to the Executive Committee of the Alumni Association. By the latter it was adopted and announced to the alumni body in December, and in due time the plan of procedure was carried out in full. The Association's Alliance Committee was continued for the year 1904-05, during which time its work, as carried on by the secretary, consisted mainly of keeping representative alumni in distant places informed of developments in the merger question. A complete collection of newspaper clippings concerning this question has been made as a matter of permanent record. All expenses of the committee were met by special contributions. The need of its existence being at an end, the committee was discharged at the meeting of November, 1905. At the special meeting Dec. 2, 1904, the relations of the Institute with Harvard were the sole topic of discussion.

Digitized by Google

Through a Commencement Celebration Committee, appointed at the March meeting, the Association undertook, with success, the management of the 1905 commencement celebration, and the meeting in May was called to consider plans for that event.

The most important work conducted by the Association is the publication of the TECHNOLOGY REVIEW, and the March meeting was devoted principally to a consideration of questions affecting the future of the magazine.

At the suggestion of the Technology Club of the Merrimack Valley the Association has recommended the adoption by local alumni organizations of a uniform membership card which shall entitle the holder to visitor's privileges in all such organizations. The Committee on Closer Relations has undertaken to secure the general adoption of such a card:

In order to insure proper permanent organization in the undergraduate classes, the Association co-operates each year with the Registrar of the Institute in the preparation of a card catalogue of each entering class. These catalogues are kept in the Dean's office at the Institute, in the custody of the secretaries of the respective classes. By annually making note of changes in membership, each class, at graduation, has a complete catalogue of its members upon which its work as a permanent organization may be based.

At the annual meeting in 1904 the Association adopted a systematic plan of raising revenue by which each class is asked to make a contribution to the Association once in five years, the amount of the payment to be determined by the number of its living graduates and the number of years the class has been out of the Institute, no payment being requested until five years after graduation. Financially, the Association is in prosperous condition, for in addition to class contributions it has received from the Commencement Celebration Committee $371.95 as the net proceeds of the 1905 commencement celebration, due to the admirable management of the Pop Concert.

Upon completing the routine business of the November 21st meeting, the remainder of the evening was devoted to an interesting, informal discussion of alumni questions brought up by President

Digitized by Google

Frank L. Locke, '86, of the Alumni Association, and by other members of the Alumni Association's Executive Committee.

FREDERIC H. FAY, '93,
Secretary.

THE WASHINGTON SOCIETY OF THE M. I. T.

Our society has, during the past year, carried out regularly the plan which was inaugurated the year before, and has held informal dinners and smokers twice a month at the society's home, the University Club. The club, started within two years, largely through the efforts of our society, has established an enviable reputation for its excellent *cuisine* at moderate prices and its other attractions as a place for college alumni meetings, and the frequent contact with other college men incidental to our meetings has proved desirable rather than otherwise. The meetings have been announced by postal notices to members, and were continued throughout the summer, though many of the Washington Tech men leave the city for field work during a part of the year. It is intended to make these semi-monthly dinners a permanent institution, and any Tech men visiting in Washington may look for a welcome at the University Club, 16th and K Streets, on the second and fourth Mondays of the month at six o'clock.

The annual dinner of the society was held at the Hotel Cochran on December 14, with about forty men present. Marshall O. Leighton, '96, served as an efficient toastmaster.

The principal toast was that responded to by President Pritchett, "The President of the Institute." He urged that our earnest attention as Tech alumni be given to aiding in the solution of the problems confronting the administration of the Institute, as now defined by the recent decision to remain at the present location in Boston and independent of any other institution. He pointed out two different courses of educational policy that are open to the Institute, either to emphasize the work of undergraduate instruction or to build up primarily a graduate school with undergraduate courses. He stated as a fact of modern educational development

Digitized by Google

that in order to make a trial of a new idea in education, it is almost necessary to start a new school, while in the business world it is the old established and influential concerns that try the most experiments. This led up to the question of whether or not a change in the manner of administration would be desirable, to give a degree of autonomy to the various courses and make of each practically a separate school of engineering. Various other questions affecting the future of the Institute were also touched on by the President in his address.

He was followed by Proctor L. Dougherty, '97, whose toast was "Reconstruction." Mr. Dougherty traced the activity of the alumni in the welfare of the Institute as shown in the many alumni associations, the Graduate Athletic Council, and the subscriptions to the Walker Memorial Gymnasium and the Technology Fund, and argued that the alumni should have recognition in the Corporation. After referring to the fact that this society was the first of the alumni bodies to welcome President Pritchett after his election, he said it was the first to wish him God-speed in the event of his leaving the Institute to accept the presidency of the Carnegie Foundation.

"The Recompense of a Public Servant" was responded to by Mr. Frederick Haynes Newell, '85, director of the Reclamation Service. He spoke about the dignity of public service. The remuneration of public servants is generally lower than in private life, but there is less chance for making colossal failures. The wages a man receives generally run a little below the real value of his services. Young men entering the government service must learn from the older men: if they are not bumptious, they will advance more rapidly. Mr. Newell advocated the retirement on pensions of the aged and infirm government employees.

The officers elected for the coming year are: William J. Rich, '84, president; Francis Walker, '92, vice-president; Frederick W. Swanton, '90, secretary; Edwin F. Allbright, '04, treasurer; Albert S. Merrill, '00, director.

F. W. SWANTON, '90, *Secretary.*
1641 13th Street, N.W., Washington, D.C.

Digitized by Google

THE M. I. T. CLUB OF CINCINNATI

The Technology Club was much gratified to have at lunch one day, early in December, Mr. C. L. Auer, who has been spending the last few years at Pedroceno, Durango, Mex.

The American Smelting and Refining Company has a $10,000,000 plant there, and are just completing a $2,000,000 smelter, the largest in the world. There are eight M. I. T. men in the town.

S. H. PUGH, '97, *Secretary*,
1912 Madison Road, Cincinnati, Ohio.

THE TECHNOLOGY CLUB OF NEW BEDFORD

The Technology Club of New Bedford held its annual meeting on Thursday, the 2d. of November. Charles R. Allen was elected president, Charles F. Wing, Jr., secretary and treasurer, and Charles F. Lawton, with the officers, executive committee. The club is lusty and growing, and we expect a season of pleasant meetings. There are now twenty members, with prospect of more to come.

The annual dinner was held on Wednesday, the 22d of November, at the house of Mr. Theodore F. Tillinghast. President Pritchett was present, and entertained the members with a short address on present and future conditions at Tech. There were sixteen present at the dinner, which went off with great *éclat*.

One of our members, Mr. E. G. Taber, '77, we have just heard from in Spokane, Wash., where he is connected with the Spokane International Railroad. He writes that he has several Tech men working with him.

CHARLES F. WING, JR., '99, *Secretary*,
34 Purchase Street, New Bedford, Mass.

THE TECHNOLOGY CLUB OF HARTFORD, CONN.

The following is from the Hartford *Courant* of December 4, 1905:—

The Technology Club of Hartford, composed of former students at the Massachusetts Institute of Technology, Boston, held its fourth meeting

Digitized by Google

Saturday evening at the rathskeller of the Hotel Heublein, President Charles Pettee presiding. Seven new members were elected, giving the club a membership of about thirty-five, all living in Hartford and vicinity. After Commissioner Henry Souther spoke on the future of the club, explaining how it could be made of benefit, not only to its members, but to the public, by giving lectures and debating the scientific problems which frequently come before the city departments, there were remarks by others, and the business meeting adjourned, to be followed by an oyster roast. Those present not already named were Vice-President H. H. Burdick, secretary; George W. Baker, Charles R. Nason, Henry Fiske, A. L. Whitmarsh, Clarence E. Whitney, Charles T. Lincoln, H. H. Ensworth, Charles F. Barrett, G. A. Shaw, P. M. Arnold, E. K. Lorenz, A. M. Holcombe, D. A. Richardson, S. E. Horton, R. B. Babson, Frederick C. Moore, William H. Beers.

The club will hold probably a half-dozen more meetings this season, and a committee appointed last night will look up permanent quarters. At the next meeting, which is expected to be held within a month, some scientific question pertaining to the city will be debated. The standing committee to select subjects and speakers, which was chosen last evening, consists of Mr. Souther, Mr. Lincoln, the president, and the secretary. The club proposes to have a number of speakers from out of town, and to have their addresses followed by discussion of the subjects upon which they speak.

THE ASSOCIATION OF WOMEN OF THE M. I. T.

The annual meeting of the Technology Women's Association was held at the Margaret Cheney Room on Saturday afternoon, January 6, with a good attendance. Professor Wilhelm Ostwald was the special guest of the association, and gave a very interesting address on the new universal language "Esperanto."

THE TECHNOLOGY CLUB

At the annual meeting of the Technology Club held on Tuesday evening, October 17, the following officers were elected: Guy Lowell, '94, president; Francis H. Williams, '73, vice-president; Leonard T. Bushnell, '05, secretary; Augustus H. Gill, '84, treasurer; and to the Council for three years, A. F. Bemis, '93, H. E. Clifford, '86,

Digitized by Google

S. K. Humphrey, '97, F. L. Locke, '86, E. C. Miller, '79. Following the business meeting a smoke talk was given by Mr. C. Howard Walker on "Municipal Improvement." The second entertainment was ladies' night, and a beautifully illustrated talk was given on "Thoreau's Country" by Mr. Herbert W. Gleason. Other interesting talks have been given, by Mr. George W. Anderson on "Public Franchises and Municipal Ownership" and by Mr. W. W. Thompson on "Historic American Yachts." On Monday, December 18, the club had the pleasure of listening to a talk by Dr. Wilhelm Ostwald on the international language, "Esperanto." Considerable interest was manifested, and a club for the study of Esperanto has been formed. The club was used October 27 for the Walker Club Reception to College Graduates, and has also been used by the Instructors' Club and the Civil Engineering Society.

LEONARD T. BUSHNELL, '05, *Secretary*,
83 Newbury Street, Boston.

Digitized by Google

NEWS FROM THE CLASSES.

1868.

PROF. ROBERT H. RICHARDS, *Sec.*, Mass. Inst. of Technology, Boston.

Ellery Appleton writes:—

I am employed by this company [Ozan Lumber Company of Prescott, Ark.] to locate and build spur lines for their railroad, the Prescott & North-western, for getting lumber, they owning large tracts of land in this section.

In spite of the general prosperity of the country, this part of Arkansas is pretty badly off this year, with the floods in the early part of the season washing out the newly planted crops, many farmers, after planting three times, having nothing to show for it now. This was followed by the yellow fever scare; and, although there was no fever here, this part of the State was strictly quarantined, which effectually cut off the intercourse with the outside world, and reduced us to the position of trying to make a living out of a hotel where there was no business. So we had to study on living on as little as possible ourselves, and yet be prepared to furnish a good meal to a possible traveller.

—James P. Tolman writes that since his return from Italy last spring he has been very closely occupied with extensions at their mill.—J. B. Duncklee says:—

I do not know whether I have ever mentioned to you that my principal work under the United States Engineer Department at Washington was the resident charge of the "Potomac River Improvement," an extensive work of reclamation on the water front of Washington, by which some 620 acres of marshes and flats, subject to tidal overflow, were reclaimed by the dredging and deposit of some 11,000,000 cubic yards of material from the navigation channels of the river, forming the public reservation now known as "Potomac Park." The work was done chiefly with hydraulic dredges. The cost of the work was about $2,200,000, while a conservative estimate

Digitized by Google

of the value of the reclaimed land was $6,500,000, being one of the few instances where the United States has made a profit on a public work.

It was because I had specialized for so many years on reclamation that I was consulted in reference to the electric dredge, which promises most efficient and profitable results on the field which exists about New York Harbor. Here we would be satisfied with a profit of $500 per acre.

—Bryant P. Tilden writes:—

In September, 1903, I went on a locating scheme for the Grand Trunk Pacific Railroad in the Canadian north-west. During the following summer I was acting engineer for my home town, took charge of the construction of three miles of pipe sewers, and was elected county surveyor. Last spring accepted position in charge of surveys in North Dakota for the United States government, and also acting city engineer of Bismarck, N.D. Just at present I am acting as consulting and locating engineer for railroad schemes in Florida.

—Stuart M. Buck has been doing reporting work, spending some time in the Clinch Valley Coal Field and also in Central Tennessee, has examined a pyrites mine in Virginia, and has been overseeing the development of a Virginia soapstone quarry. He has also had charge of a Joplin zinc mine.—Eben S. Stevens was laid up with rheumatism for ten weeks during the summer, and has since been employed in picking up the threads of his business.—Albert F. Hall has been devoting himself strictly to business, and has had no vacation in over three years.—Walter H. Sears writes that he has been on the New York water works all the year, a part of the time at Katonah, N.Y., where the commission is starting on some new work in the way of a big storage reservoir, and the rest of the time in the New York office. He made the investigations which have resulted in the adoption of the Catskills for a new source of water supply for the city.—Whitney Conant has completed the work in which he has been engaged, that of the construction of the Jersey City waterworks, but the works have not yet been transferred to the city. He has made several trips to the Middle West, where he is interested in water and electric light companies.—Eli Forbes writes that he made a trip to California by way of Portland, Ore., this summer.

Digitized by Google

This past summer completes his thirty-sixth year of continuous service with the Lancaster Mills.—Robert H. Richards spent two and a half months in Oregon at the Lewis and Clark Fair, on the United States Geological Survey, studying the black sands of the Pacific coast. Beach sands from Columbia River, from the Oregon seacoast, and clean-up sands from gold dredges and hydraulic plants were studied, as well as tailings from hydraulic plants. After a good deal of experimenting, the process adopted by Henry E. Wood, of Denver, was found to be most efficient. The sand is at first concentrated on a Wilfley table, the concentrates are dried, and then given five passes under a Wetherill magnet, increasing the magnetic power with each pass, yielding, in the order of the passes, magnetite, chromite, or ilmenite, garnet, hypersthene, monazite, and finally zircon left behind. These minerals have commercial value, and may increase the value of the sands from five to twenty times what they are worth for the small amount of gold and platinum they contain.

The chromite is used for chrome colors and chrome steel, the garnet is an abrasive, the monazite (phosphase of thorium) and the zircon (silicate of zirconia) are both used in the manufacture of Welsbach light mantles. To utilize the magnetite, a little electric furnace has been installed, which will make 200 pounds of steel in an hour and a half, using 1,000 amperes and 55 volts, and the rough preliminary cost figures for this operation indicate profit even on an experimental scale, provided the quality of the steel can be gained and controlled.

1874.

CHARLES F. READ, *Sec.*, Old State House, Boston, Mass.

The thirty-second annual reunion of the class association was held at the Technology Club, Boston, on the evening of December 30. The following eleven members were present: Messrs. Barrus, E. L. Brown, Chase, G. T. Elliot, Mansfield, Nickerson, Read, Robinson, Russ, Silsbee, and Warren. The following officers were elected to serve during the year 1906: president, George H. Barrus;

Digitized by Google

vice-presidents, John C. Chase and Charles C. R. Fish; and secretary and treasurer, Charles F. Read.—Edward S. Shaw is to be consulting engineer for Harriman Brothers, engineers of Boston, who are to build for private parties a light-house on Diamond Shoals, off Cape Hatteras. If the light-house is a success after a test of five years, the United States government will purchase it for the sum of seven hundred and fifty thousand dollars. The project was described at length in the Boston papers of Dec. 30, 1905.—William T. Blunt, member American Society Civil Engineers, who has been connected with government service the greater part of the time since 1879, and has been assistant engineer upon the harbor works in the Cleveland district on Lake Erie since 1886, has been given an indefinite furlough, and will enter contract work at Boston, with George H. Breymann & Bros., on Jan. 1, 1906.

1875.

E. A. W. HAMMATT, *Sec.*, 10 Neponset Block, Hyde Park, Mass.

During the summer I received a letter from W. H. Shockley, who wished to be remembered to all '75 men. The memorandum of his journeys occupied about one and one-half closely typewritten pages. Shockley has not only been rocked in the cradle of the deep, but in that of the desert, as on one of his trips he made a camel journey of 1,200 miles. At the time of writing he said he was thinking of again going to Bogoslovsk, in the Ural Mountains. Judging from the recent accounts in the papers, it would seem as though Russia would be a good place to keep away from for a time at least.—On Sept. 27, 1905, Henry Simonds, of Lexington, was married to Edith R. Durham, of Belmont. They are living in Winchester this winter.—A few days ago I received a pleasant letter from Cabot. John has retired from the active practice of medicine, and is enjoying life at his home in Weekawken, N.J., or in travelling with his wife.—I should be greatly obliged to any one who would send me one or more of the following numbers of the *Spectrum*, viz.: No. 8 of Vol. I.; Nos. 4 and 5 of Vol. II.; Nos. 3, 5, 6, 7, 8, of Vol. III.

Digitized by Google

1877.

RICHARD A. HALE, *Sec.*, Lawrence, Mass.

Frank E. Peabody has been elected a director of the Boston Elevated Railway Co. in place of his father, recently deceased.—W. E. Chamberlin has designed and built a new savings-bank building, which is a model of convenience and architectural beauty, in Cambridge. It is gratifying to know that his ill-health does not entirely prohibit his professional work.—F. W. Wood has a son in the Freshman Class at the M. I. T. the present year.

1878.

LINWOOD O. TOWNE, *Sec.*, Haverhill, Mass.

The class has the unique honor of one of its members being elected Lieutenant-Governor of Massachusetts. Mr. Eben S. Draper, after an exciting campaign, was elected to that office on the ticket with General Curtis Guild, Jr., as Governor. The Democratic candidate for lieutenant-governor was Henry M. Whitney, and the contest was mainly upon the question of reciprocity.

1882.

WALTER B. SNOW, *Sec.*, 29 Russell Avenue, Watertown, Mass.

The following is from the *American Carpenter and Builder* for December, 1905:—

Frank E. Kidder, the great architect and author, and one of our most valued editors, died October 27, at Denver, Col., in his forty-sixth year. The death of Mr. Kidder leaves a break in the ranks of the architects of this country which will be hard to fill, as he was looked upon as a leading authority. He was born in Bangor, Me., in 1859. At the age of twenty he graduated as a civil engineer at Maine State College. Later he studied architecture at Cornell University and at the Massachusetts Institute of

Digitized by Google

Technology, where at the same time he also delivered lectures. He later established himself in practice in Boston, but, owing to ill-health, was obliged to seek a healthier climate, and in 1888 moved to Denver, Col. Mr. Kidder soon became an authority on all forms of building construction, and most of his work was done as consulting architect. He was distinguished at the author of "Architects' and Builders' Pocketbook," "Churches and Chapels," "Building Construction and Superintendence," and "Strength of Beams, Floors, and Roofs." He was an earnest church worker, and took particular interest in designing churches.

At the annual meeting and tenth anniversary of the Foundrymen's Club, held on Thursday, January 11, Walter B. Snow was elected president. This club is composed of 118 concerns scattered throughout New England.—From the Chicago *Record-Herald* of Dec. 13, 1905:—

State Architect W. C. Zimmerman, who made an appeal for "The City Beautiful" in connection with plans for public improvements at the Illinois State capitol at a mass meeting held at Springfield last night, has been identified with the building of many of the most imposing structures in Chicago, where he has resided for twenty-five years. He attended the Boston Institute of Technology. While associated with the firm of Burnham & Root, he assisted in the architectural work of the World's Columbian Exposition. At the time of his appointment as State architect by Governor Deneen, he was architect for the Lewis Institute. He was a member of the Architectural State Board of Examiners during the Tanner administration, and is president of Illinois Chapter of the American Institute of Architects.

1883.

HARVEY S. CHASE, *Sec.*, 27 State Street, Boston.

The secretary regrets to report that George H. Gustin has been attacked with what is apparently an incurable disease. As previous class circulars have stated, Mr. Franklin B. Richards, of M. A. Hanna Company, Cleveland, would be glad to correspond with members of the class regarding him.—H. S. Chase has been appointed a member of the Executive Committee of the American

Digitized by Google

Association of Public Accountants as representative of the New England States. The Executive Committee consists of seven members, and acts for some eighteen State associations of accountants in various parts of the country. This national organization has a membership of between five and six hundred men, who are making a profession of public accountancy.—Mr. and Mrs. Horace B. Gale are at home, Trinity Court, Dartmouth Street, Boston.

1884.

PROF. WILLIAM L. PUFFER, *Sec.*, Mass. Inst. of Technology, Boston.

In a letter to Gill, under date of November 21, Boardman announces that he has left the Aspinook Company for a position in which he has charge of the Waldrich Bleachery, Worthen & Aldrich Company, Delawanna, N.J.—Our class will hereafter shine by reason of the honors received by Rotch from the Emperor William, who has bestowed upon our classmate the Order of the Red Eagle of the third class. The Order of the Red Eagle is a Prussian order founded in 1734, and in 1791 was raised to the rank of second in the monarchy. The badge consists of a white Maltese cross, with red eagles between the arms, in the centre of a golden plaque, with the cipher "F. W. R." and the motto "Sincere et Constanter." The ribbon is white, with two orange stripes.—Through the kindness of one of the class our records have been enriched by a number of photographs of ourselves as we looked at time of graduation, and your secretary wishes that he could get past and present photographs of all members of the class, and that he could be authorized to incorporate them in the next class directory.—William J. Rich has recently been elected president of the Maine Association of Washington, D.C., composed of former residents of the Pine Tree State. He has also just been elected president of the Washington Society of the M. I. T.—T. S. Mead has recently been elected president of the Boston Fruit and Produce Exchange.

Digitized by Google

1885.

I. W. LITCHFIELD, *Sec.*, 161 Devonshire Street, Boston.

The class of '85 will dine at the University Club, Boston, Saturday evening, February 3. Fred Kimball has prepared lantern slides of a number of photographs taken at Camp Walker last summer, and will exhibit them at that time.—'85 is to be congratulated on the election of Everett Morss to the presidency of the Alumni Asso-'ciation. No man has put in more telling work on the Walker Memorial or Technology Funds, and, besides raising money, he has given his influence and efforts in season and out of season to the Institute.—Ed. Dewson has migrated from Pittsburg, and is now resident engineer for the Westinghouse Brake Companies in New York City. His residence address is 15 West 88th Street.—C. W. Eaton is president of the Standard Dredging Company, and at present is located at "The Mount Royal," Baltimore, Md. He has taken an $800,000 contract for deepening the channel at Baltimore. He is still a director in the National Dredging Company, of which he was formerly vice-president.—Frederick H. Newell, '85, is credited with being the founder of the recently organized Washington Society of Engineers, and has been elected one of its directors.

1887.

EDWARD G. THOMAS, *Sec.*, 161 Devonshire Street, Boston.

Twombly has joined the forces of Westinghouse, Church, Kerr & Co. in New York, and may be found at 10 Bridge Street. All projects submitted to the company are handed to him for a preliminary report, involving investigation on the spot of feasibility and cost. It is evident that his thorough experience in the use of water, steam, and electric power will be of very great service to the company.—The Secretary has been transferred to the Boston office of the Lamson Consolidated Store Service Company at 161 Devonshire Street, to assist in the development of a department for the manufacture of

Digitized by Google

special conveyors and pneumatic machinery.—Fred Thompson has been assigned to the Charlestown Navy Yard, where he has in charge the buildings, yard, and docks.—Lane was active on the side of good government in the recent municipal campaign in Boston.—Maurice Cooley has just returned from Trinidad to enjoy a well-earned vacation after three years spent in managing the asphalt properties on that island and in Venezuela. He will next undertake the development of the street railways of Uintah, Utah, and has already started for this new work.—H. C. Spaulding will be pleased to see his friends at 39 Cortlandt Street, where he is assistant sales manager for the Triumph Electric Company.—Gelett Burgess will have published this spring a book entitled "A Little Sister of Destiny" (Houghton, Mifflin & Co.), consisting of a series of stories whose heroine is a California millionaire girl in New York. Several of these tales have already appeared in the *Ladies' Home Journal*. There, unfortunately, the hero was forced to end his call on the heroine at ten o'clock, owing to the editor's consideration for the etiquette of the Middle West. In the book, however, Burgess promises that the hero will stay later.—H. J. Conant is now in Jamaica on a trip in search of good health. He proposes to go to Europe later, and will spend nearly a year away from business.

1888.

WILLIAM G. SNOW, *Sec.*, 1106 Penn Mutual Bldg., Boston.

The secretary has been so busy, owing to relocating in Boston, that he has not been able to get much class news. He has been for five years in Philadelphia, but is now manager of the New England office of Warren Webster & Co., Camden, N.J. His home address is 69 Pelham Street, Newton Centre.—B. R. T. Collins has been conducting an elaborate series of tests on a 500 kw. Westinghouse steam turbine in the Indian Street plant of the Savannah Electric Company. He has been assisted by Messrs. Isenberg and Lage, of the Senior Class at the Institute, who will use this work as the basis of their graduating theses.—B. G. Buttolph and William G. Snow

Digitized by Google

were present at the New York meeting of the American Society of Mechanical Engineers.—The following is quoted from the *Electrical World* of Dec. 9, 1905:—

At the annual meeting of the National Conference on Standard Electric Rules, held in the Auditorium of the New York Edison Company on Monday, December 4, Mr. W. H. Blood, Jr., was elected president, and Mr. C. J. Woodbury secretary-treasurer. . . . The new constitution provides that a yearly meeting of the conference shall be held, contemporaneous with the meeting of the Underwriters' National Electric Association. The list of societies forming the present National Conference on Standard Electrical Rules is as follows: American Institute of Electrical Engineers, American Society of Mechanical Engineers, American Street and Interurban Railway Association, American Institute of Architects, American Institute of Mining Engineers, Associated Factory Mutual Insurance Companies, Association of Edison Illuminating Companies, National Association of Fire Engineers, National Board of Fire Underwriters, National Electric Light Association, Underwriters' National Electric Association, National Contractors' Association, International Association of Municipal Electricians. These societies alone may vote on changes and recommendations to the Underwriters' National Electrical Code. Associate members are made up of corporate interests, such as the American Telephone & Telegraph Company, Western Union Telegraph Company, Postal Telegraph Company, General Electric Company, Westinghouse Electric and Manufacturing Company.

—Sumner B. Merrick is located in the Farmers' Bank Building, Pittsburg, Pa. He is interested in gold mines at Silver Bow, Nev.

1889.

PROF. F. A. LAWS, *Sec.*, Mass. Inst. of Technology, Boston.

Eugene E. Peirce writes from the office of the Harbor and Land Commission, as follows:—

We have completed the survey of the group of towns lying between Worcester and the Connecticut line, and I am now housed for the winter in our office at the State House.

In the early spring we shall begin the survey of the boundary line be-

Digitized by Google

tween Connecticut and Massachusetts. Mr. Buck, who until recently was the assistant city engineer of Hartford, will represent the State of Connecticut, and your humble servant will act in the same capacity for Massachusetts. This will be a very interesting piece of work, as it is some ninety-three (93) miles in length. We shall chain the entire line, and make a stadia survey, covering the area on either side of the line for a distance of about five hundred (500) feet, and later will mark the boundary with substantial granite monuments, as we have all of our other State lines.

—Henry Howard is chairman of the Regatta Committee of the Eastern Yacht Club, also of the Motor Boat Race Committee of the Eastern Yacht Club. We have before us the reports of the committees, and note that the treatment of the subject of motor boats is such that the data derived from the results of the various races will be of use to designers of high-speed craft of this general description. There are numerous photographs showing the wave formation of boats differing widely in speed and model. Of especial importance is a detailed statement of the measurements of motor boats, which gives accurate data concerning dimensions, the engines employed, and the speed attained. The photographs are very interesting from the fact that nearly all of the boats were going at much greater *relative* speeds than are attained by the fastest ocean steamships. The results of the trials may be considered as serving to some extent as model experiments indicative of possible development of extreme speeds in large vessels.—S. B. Sheldon is the general superintendent of the Lackawanna Steel Company of Buffalo, New York. Their plant is the largest individual unit in the world, and is the strongest competitor of the Steel Corporation, making rails, billets, merchant bars, structural iron, splice bars, plates, and, in fact, almost anything of standard varieties of rolled iron. The capacity of the plant is about 100,000 tons of finished material per month. The Lackawanna Company has six blast furnaces and eleven open-hearth furnaces, and has the distinction of being the only plant in the country that utilizes blast furnace gas for development of electrical power, also for furnishing air to blow the blast furnaces. The extent of the plant is about 500 acres. They also have a large battery of coke ovens. The number of employees is about 6,000.

Digitized by Google

—A recent letter from G. M. Basford states that he has changed his business connections, and has entered the service of the American Locomotive Company. His office is at 111 Broadway, New York.—In the program courses of Free Public Illustrated Lectures to be given at the public library of the city of Boston, we note that W. H. Kilham is to lecture on "Palladian Renaissance." This lecture is under the auspices of the Boston Architectural Club.—Hollis French, of the firm of Hollis French & Allen Hubbard, writes that among other work they are designing a sub-station for distributing electrical power to the town of Wellesley, and are also designing new street lining and commercial systems for the same town.

1890.

GEORGE L. GILMORE, *Sec.*, Lexington, Mass.

Professor H. M. Goodwin has succumbed to the inevitable at last. His engagement to Miss Mary B. Linder, of the Beaconsfield, Brookline, was recently announced.—William R. Peyton, with his family, of Duluth, was in Boston on a business trip early in October. Billy looked just the same as he did fifteen years ago, except that there is a trifle more of him than in those days.—Mr. and Mrs. John Crowther, Jr., of Lutherville, Md., recently announced the engagement of their daughter, Miss Mary Grace Crowther, to Cyrus Cates Babb, of Washington, D.C. Mr. Babb is a civil engineer in the United States Geological Survey. The wedding will take place early in the spring.—On October 19 Charles Hayden, of Hayden, Stone & Co., left for a month's trip to Mexico, to visit the Greene and Shannon properties, going by the way of St. Paul to attend the Twin City Railroad annual meeting. In November he went to Butte to inspect the properties of the East Butte Mining Company, and also visited many properties in which the firm is interested in Colorado, Arizona, New Mexico, and Canada. He has been appointed aide-de-camp on the staff of Governor Curtis Guild, Jr., with the rank of major. This is the same position held by Charlie two years ago on the staff of Governor Bates.—Rev. George F. Weld, of Hingham, was very ill at

Digitized by Google

his summer home for several months, but, when last heard from, he was reported as being in a very comfortable condition.—Guy C. Lowell left Boston in December to accept an important government position in the Department of the Interior.—H. P. Spaulding, the artist, with his family, is spending the winter in Italy. At last accounts he was located in Sorrento.—Following is from the Jamestown (N.Y.) *Evening Journal:*—

President F. L. Chase, of the Chautauqua Lake Road, has reason to feel happy, for the Lake Shore people have ordered 25 of the gasoline motors which he, with Bertrand M. Young, has perfected, and which will be used on the Chautauqua Lake Road next summer.

1891.

HOWARD C. FORBES, *Sec.*, 4 State Street, Boston.

In the recent railroad accident at Lincoln, Mass., one of the worst which has happened in Massachusetts, Herbert S. Kimball, who was on the train that was wrecked, had a most fortunate escape. A local train on the Fitchburg division of the Boston & Maine Railroad was closely followed by the Montreal express,—a heavy Pullman train drawn by two engines. At a point in Lincoln, known as Baker Bridge, the express train ploughed its way through the local train just as the latter was starting from the station. The two rear cars of the local were wrecked, the greatest loss of life being in the rear car. Kimball was in the next to the last car, but it was a mere turn of the hand as to which of these two cars he entered when he boarded the train. His account follows:—

I wanted to be in Fitchburg early Monday morning in connection with some reconstruction work which I am doing in one of the mills, so I decided to go up there on Sunday night. I took the electric car to Waltham, but, as the train for Fitchburg—the Montreal express—did not stop at Waltham, I was obliged to take the local train, intending to change to the express at South Acton. This is how I happened to be on the train which was wrecked. The local train was on time by the station clock at Waltham,

Digitized by Google

where a large number of passengers left the cars. By good fortune I did not enter the rear car, but took a seat in the next car about two-thirds of the way up. I sat down on the right-hand side of the car, under one of the oil lamps, and began to read. When I entered the train, I remember thinking that we were on time, and that the express was following us, also that the lights in the cars were of the oil variety; but I had no special apprehension.

The train stopped at almost every station, and I had been reading, I should say, about twenty-five minutes when the collision occurred. My impression is that the train had slowed down for a stop, but I would not be sure whether we came actually to a full stop or not. At any rate, the train was just starting up when there was a tremendous shock, and for an instant only I thought another car was being coupled on to the train, but the shock was much more violent. Immediately there was darkness, and one or two more shocks which threw me back and forth in my seat. The shocks were accompanied by a most dreadful noise, a rushing roar above all, and the grinding of the air brakes beneath. I expected every minute to be struck by something in the darkness, and to be thrown up into the air or out of the window, and I wondered when and how it would all end. Then for a second all seemed still, and I realized that the cars were on fire. In looking back in the semi-darkness, lighted by the fire which had started, I observed general confusion. Timbers of the rear car were pushed through my car and out through the roof, coming about half-way up the car and within about ten feet of me.

By the light of the burning car I could see that the glass in my window had been broken out, and I got out of the car by vaulting out through this window. Probably, in doing this, I received the cuts on my head and knee. My injuries were these cuts, a bump on the head, and a lame back, which were due to the jolting back and forth which I received.

When I got out, I went up on the bank. The wreckage was all on fire, and everything seemed in general confusion. The locomotives and cars were all in a heap, and the noise of the escaping steam from the locomotives was terrific. The people were climbing out of the doors and windows and the passengers from the rear train were running up, so that soon willing hands were at work removing people from the wreck. The awful sights that followed were the saddest I have ever seen. The relief train carrying the wounded to the hospitals, with its doctors and nurses in attendance, the railroad officials, kind and sympathetic, the reporters hovering around, imprinted upon my memory a scene never to be forgotten.

Digitized by Google

I was around the wreck from quarter past eight in the evening—the time that it occurred—until about eleven o'clock, and then went back to Waltham on the relief train. The doctor at Waltham fixed up my cuts, and sent me home in a carriage. I got home about one o'clock at night.

1892.

PROF. WILLIAM A. JOHNSTON, *Sec.*, Mass. Inst. of Technology, Boston.

At the annual meeting of the New England Fire Insurance Exchange, held on Saturday, January 6, G. T. Forbush was elected president. He enjoys the distinction of being the youngest man who ever held that important position. He is considered an expert on sprinkler work, and also on chemical and electrical subjects in their relationship to fire insurance.—Stephen Bowen was married on November 9, 1905, to Miss Emily Francis Pratt.—Francis Walker has returned to Washington after spending several months abroad while engaged in special investigations for the Bureau of Corporations. His work took him into nearly every country on the Continent. He was in Russia during some of the recent disorders that have convulsed that country.

1893.

FREDERIC H. FAY, *Sec.*, 60 City Hall, Boston.

The following '93 men attended the annual dinner of the Alumni Association December 29: Barnes, Bemis, Blood, Braman, S. A. Breed, W. A. Clapp, Fay, Morss, C. W. Sawyer, Spofford, and Tucker.—Howard R. Barton, formerly in independent practice as a consulting engineer at 29 Broadway, New York, has taken into partnership Mr. Raymond Carpenter, under the firm name of Barton & Carpenter, and the new firm has moved to 149 Broadway, New York City. Mr. Carpenter is a specialist in factory equipment and machine design, and the new firm will carry on a general

Digitized by Google

practice as consulting mechanical and electrical engineers.—Grosvenor T. Blood has been elected a member of the school committee of the city of Newburyport.—Many '93 men attended the wedding of Miss Walley and Edward Dana Densmore on Oct. 24, 1905. The following account of the event appeared the next day in one of the Boston papers:—

Miss Annie Louise Walley, daughter of Mr. and Mrs. Edward Walley, and Mr. Edward Dana Densmore, were married last night at the Central Congregational Church, the Rev. John Hopkins Dennison officiating. The bride was gowned in a princess robe of white messaline, beruffed with lace. Her veil, a family heirloom, was of old Honiton lace, and she carried a shower bouquet of lilies of the valley, being escorted to the chancel by her father. She was attended by her sister, Miss Miriam Walley, who was gowned in rose-pink chiffon crepe, and carried a bouquet of Wellesley roses, the shade of her gown. Mr. Ellis Densmore was best man, and the ushers were Messrs. John Densmore, Albert Densmore, J. P. Sylvester, Gifford LeClear, Thomas H. Russell, 2d, Philip C. Stanwood, and Samuel H. Walley. The bride is a graduate of Radcliffe, '04, and the groom graduated from Tech in '93, and was a post-graduate of Harvard the following year. He is a member of the firm of Densmore and LeClear, mechanical engineers. A reception followed at the home of the bride's aunt, Mrs. Arthur G. Stanwood, 189 Bay State Road, where the young people were assisted in receiving by the parents of each. The groom is a son of Mr. Charles Dana Densmore, of Somerville. Mr. and Mrs. Densmore on their return from their wedding journey will reside in Cambridge.

—James A. Emery, general manager of the Birmingham (Ala.) Railway, Light, and Power Company, was North in November, and visited friends in Boston and Haverhill.—Under the title "A Musical Poet of Childhood" the *Outlook* of the 23d of December published an article by Arthur Farwell upon the German composer Engelbert Humperdinck, whose opera "Hänsel and Gretel" and other compositions have won for him world-wide fame. While studying music in Germany and France from 1897 to 1899, Farwell was a pupil of Humperdinck, as well as of Pfitzner and Guilmant.—

Digitized by Google

Oren E. Parks has recently been elected a member of the American Society of Civil Engineers. For nearly twelve years he has been town engineer and engineer of water works of Westfield, Mass.—Walter W. Patch is connected with the United States Irrigation Service at Belle Fourche, So. Dak., as engineer in charge of the second division of the Belle Fourche irrigation project. He has designed and is about to construct a storage reservoir of eight thousand acres and seventy billion gallons, storage capacity, including the building of a large earthen dam, 6,500 feet long, 115 feet maximum height, and containing 1,600,000 cubic yards of material. The dam is to be built of clay mixed with very fine sand, and is to have no core wall. Its up-stream face will be paved with large blocks of concrete to resist the action of waves and ice. The Belle Fourche project will provide for the irrigation of about ninety thousand acres of land by means of a hundred miles of main canals and more than a thousand miles of lateral canals. Work will soon be begun upon some of these canals under Patch's direction, and one of his problems is the building of an inverted syphon, probably of reinforced concrete, to carry water under considerable head across a stream. The Belle Fourche district is situated upon rolling prairie at an elevation of about three thousand feet above the sea and some thirty miles distant from the Black Hills. At the site of the reservoir Patch has built a small settlement, supplied with running water from a fourteen-hundred-foot artesian well, equipped with a sewerage system, connected with the town of Belle Fourche, twelve miles distant, by telephone, etc., so that life upon the prairie is not without its comforts, while offering at the same time great advantages for hunting. During the past fall Patch's party served over two hundred and fifty wild duck upon their mess table, not to mention quantities of other game. Patch expects to remain at Belle Fourche four years, and in the spring will remove his family thither.—Walter I. Swanton, formerly in the Supervising Architect's Office in Washington, now has charge of engineering accounting in the Reclamation Service.

Digitized by Google

1894.

PROF. S. C. PRESCOTT, *Sec.*, Mass. Inst. of Technology, Boston.

C. G. Abbot has been spending the summer in California at an observatory on Mt. Wilson established by the Smithsonian Institution, where he has been carrying on some observations on the variation of the heat of the sun. This observatory is at an elevation of about six thousand feet, and approximately one thousand feet above the cloud line, so that excellent weather conditions for observations are of almost daily occurrence. Abbot reports that no rain has fallen since May. The sun shows variations in heat of from five to ten per cent., and these cause changes all over the world. It is interesting to note that the weather during the summer and fall has corresponded very closely to predictions made by Abbot as a result of his study of the sun. He has also designed a new instrument for measuring the heat from the sun's rays falling per minute over a measured area, and this seems likely to prove the most accurate and efficient pyrheliometer yet devised.—On the 17th of October at the Pawtucket Congregational Church occurred the wedding of Kenneth W. Wood and Miss Elizabeth Lee Goff, daughter of Colonel Lyman B. Goff. According to the Boston papers a feature of the wedding was the attendance of many of the mill hands of the Sayles Bleacheries where Wood is mechanical engineer, and the Pawtucket Girls' Club, an organization composed mostly of working-girls in whose welfare Miss Goff has been especially interested.—H. A. Swanton is now engaged in the manufacture and sale of a new high-speed engine of small size which he has designed. It is especially applicable for dynamos, fans, pumps, and for electrical generating sets. The special feature of this engine is that the working parts are inside an oil and dust proof casing.—One of the most important architectural competitions ever held in Pittsburg has been decided by Architects MacClure and Spahr being accepted as the designers of the 20-story sky-scraper which the Union National Bank will erect. This building will be 20 stories high, according to the competitive plans, and will cover a site 86 by 84 feet. One of the papers says:—

Digitized by Google

The firm of MacClure & Spahr, which carried off this architectural plum, is one of the youngest firms of architects in the city, but has already gained an enviable reputation for work done in this and other cities. They designed the Diamond Bank sky-scraper, and the Keystone Office Building. They have also built a large number of the finest residences in the East End, and have been selected to design the $100,000 club-house of the University Club.

—Gardner and Brown were recently awarded a first prize of several hundred dollars for a design for certain interior furnishings for houses.—A. G. Robb was married on August 9 to Miss Lavinia Grace Steele, daughter of Dr. and Mrs. Steele, of Amherst, N.S. They make their home in Amherst, where Robb is superintendent of the Robb Engine Company.—A. A. Claflin is now president of the Avery Chemical Company. Their factory is at Littleton, Mass., and the Boston office at 7 Sears Street.—H. R. Barton has become a member of the consulting firm of Barton & Carpenter, 149 Broadway, New York.—P. H. Coolidge is manager of the Western Electric Company, Philadelphia, Pa. His office is 11th and York Streets.—H. P. Dates has resigned his position of professor of electrical engineering at Boulder, Col., and has accepted the professorship of electrical engineering at the Case School of Applied Science at Cleveland.—T. C. Davies stopped a few days in Boston on his way from his old home in England to his present home in the Sandwich Islands.—A. A. Shurtleff has opened an office as a landscape architect at 22 Congress Street.—J. E. Thropp is back at Everett, Pa., in charge of the furnaces, mines, etc., of the Everett Furnace Company.—A. W. Tidd is now located at Pawling, where he is assistant engineer for the New York Aqueduct Commission.—V. A. Mayer is general manager to the Climax Manufacturing Company, 1 Hartford Street, Boston.—L. R. Moore is assistant inspector of gas and gas meters for Massachusetts.—W. A. Patch is now an engineer in the United States Reclamation Service, with headquarters at Belle Fourche, So. Dak.—L. W. Pulsifer, one of the most brilliant of the architects in the class, died in Denver, Col., on the 9th of July.—A. H. Sawyer is president of the Boston & Florida Atlantic Coast Land Company.—W. S. Hulse, after eleven years away from the

Digitized by Google

country, is now secretary and treasurer of the Empire Engineering Corporation, 111 Broadway, New York.—W. H. King is assistant corporation counsel to the city of New York.—H. K. McGoodwin is instructor in architecture at Washington University, St. Louis, being associated there with F. M. Mann, also of '94, who is professor of architecture.—F. M. Leonard has opened an office as civil engineer at 185 Charles Street, Boston.—H. R. Bates has accepted a position in Omaha.—C. A. Howes has just announced his engagement to Miss Florence Baird, of Somerville.—Mason S. Chace, of New York, formerly president of the Crescent Shipbuilding Company of Elizabeth, N.J., who was technical adviser at the Kawasaki shipyards in Kobe, Japan, during the war with Russia, is now on his way home.

1895.

WILLIAM T. HALL, *Sec.*, Mass. Inst. of Technology, Boston.

Following is from the *Engineering News*, Nov. 30, 1905:—

Judson C. Dickerman, a graduate of the Massachusetts Institute of Technology, and recently superintendent of the Merrimac Chemical Company of Boston, Mass., has been appointed assistant professor of chemical engineering in the college of engineering of the University of Wisconsin. Professor Dickerman brings to his new work considerable experience in the manufacture of a large variety of chemicals, in the construction of plants, installation and operation of machinery, and the development of new processes and methods in connection with chemical work

—Madison M. Cannon was elected a member of the Quincy City Council for 1906. He is a civil engineer with the Fore River Shipbuilding Company.

1896.

EDWARD S. MANSFIELD, *Sec.*, 70 State Street, Boston.

This is the year for our decennial celebration, and the committee appointed at the last annual meeting of the class has in charge the arrangements for a characteristic "old time spirit" celebration to

Digitized by Google

last from one to three days, and all '96 men are urged to plan their vacations in such a way that they may be present during some part of the period, the exact date of which and the place of meeting will be announced later. The publishing of a class directory is also in the hands of this committee, and it is expected that active work in this direction will commence very soon, and it will be a great help to the committee if slips asking for statistical data are filled out when received, and returned as soon as possible by all graduates and former members of the class.—E. C. Hultman has again entered the political field, and at the last election was chosen as one of the representatives to the General Court from Quincy.—M. L. Fuller (XII.), has just completed for the United States Geological Survey an investigation of the artesian waters of South-eastern North Carolina. He was assisted, among others, by B. L. Johnson, '05.—Quite a colony of Tech men is reported at Wilmington.—The following is clipped from the Houston (Tex.) *Chronicle*, the edition of October, 1905:—

Mr. J. M. Howe is one of the best-known civil engineers of the State of Texas. He is an associate member of the American Society of Civil Engineers, and ranks among the foremost of his profession in the United States.

Mr. Howe has a well-equipped office in room 232 Commercial National Bank Building, and is prepared to handle all civil engineering business that may be desired.

Mr. Howe is known as an engineer of the highest ability, and he is equipped with the most up-to-date instruments for handling his business. There is no man in the State who can follow this profession with more accuracy than he, and his name appended to any civil engineering work is proof of its correctness.

During the many years he has resided in this city Mr. Howe has won an enviable place in the esteem of the public, and especially of those who have had work done by him.

—J. Lloyd Wayne, of Indianapolis, Ind., in charge of the equipment department of the Central Union Telephone Company, spent a part of his vacation in and about Boston, calling upon a number of the class in this section.—Joseph H. Knight was married to Miss

Digitized by Google

Edith Blinn Holwell, of Pittsfield, Mass., on Wednesday, Jan. 3, 1906.—Charles Morris, Jr., who was paymaster on the "Bennington" at the time of its disaster, has been appointed to shore duty, and is now stationed temporarily in Boston, awaiting an appointment to some specific location. Mr. Morris finds the Boston weather rather severe after a sojourn in the southern seas.—A tourist passing through Los Angeles, Cal., reports meeting R. S. Hardy, who is engaged in the real estate business in that place.—The secretary has taken up his residence at 5 Cottage Avenue, Winchester, Mass.

1898.

PROF. C.-E. A. WINSLOW, *Sec.*, Mass. Inst. of Technology, Boston.

The class of '98 held its first informal reunion for the season on November 17. It took the form of a planked steak dinner at the Burger Braühaus on Hayward Place, and proved a great success. The following were present: Danforth, Coburn, Roberts, Ayres, Perley, Coombs, Russ, Sherman, Wright, Riley, Dodd, Goodrich, Butterworth, Butcher, Winslow, Paige, Curtis, and Shedd, particularly Shedd. Song and steins helped to pass a very pleasant evening, with some informal discussion of the dulness of other classes in not holding similar reunions.—O. L. Leonard was married September 23 at Denver, Col., to Miss Janet L. Macewen. Mr. and Mrs. Leonard are at home at 1136 South 15th Street, Denver.—T. E. Tallmadge and Vernon S. Watson, licensed architects, announce that they have formed a partnership for the practice of architecture, and have opened offices at 309 Ashland Block, Chicago.—W. M. Perley represents the Palmetto Metal Company, manufacturers of high-grade anti-friction bearing metal, of 589 W. Lake Street, Chicago.—Everett N. Curtis has recently moved his office from 82 to 161 Devonshire Street.—J. G. White & Co. have recently issued the following biographical sketch of a '98 man:—

Mr. Strickland was born in 1875, and graduated in civil engineering from the Massachusetts Institute of Technology in 1898. During the Spanish-American War he served at Mare Island Navy Yard, and later on board the

Digitized by Google

United States steamship "Bennington" as assistant engineer. While on this vessel, he had charge of the operation, maintenance, and repair of all the machinery about the ship. Since the war Mr. Strickland has been in the service of the Blake Pump Company and the Buckeye Engine Company as draughtsman, and with the Case Manufacturing Company, both as assistant and chief engineer, designing special electric cranes and controllers. In 1900 Mr. Strickland made the hydraulic calculations for the North Fork Power House scheme at Denver, Col. Upon the completion of this work he joined the staff of the Colorado Fuel and Iron Company as engineer of location on a standard gauge line over M'Clure Pass. He also located several electric and steam narrow gauge lines in Colorado. In 1902, as designing engineer for the Lannius Machine Company, Mr. Strickland laid out its combined amalgamator, concentrator, and arastra. He was appointed location engineer on the New York Central R.R. in 1903, and supervised the extension from Cherry Tree to Possum Glory, as well as several of their double tracking and grade revision schemes. For the past year Mr. Strickland has been assistant engineer in the Maintenance of Way Department, handling correspondence from all divisions relating to the repair and construction of bridges and buildings.

Mr. Strickland is associated with J. G. White & Co. as assistant to the secretary, with headquarters at the main offices of the company, 43 Exchange Place, New York.

—Steffens writes to the secretary as follows:—

Another '98 man left the New York Central. I left there late in November to accept position of engineer of bridges and buildings with this company that is building a first-class railroad from near the Ohio River at Elkhorn City in Kentucky, through the States of Virginia, Tennessee, North Carolina, and South Carolina, to a terminus for the present at Spartanburg, S.C. The line may, however, be pushed rapidly through to the seacoast at Charleston, as additional surveying parties are now working forward. The road is financed by some of the strongest capitalists of the country, and while it primarily will carry an immense tonnage of coal from the hitherto unexploited rich deposits in Wise and Dickenson Counties, Virginia, to the heart of the cotton industries of South Carolina, it will, from its geographical location, develop a fine through passenger business between the great seaport of Charleston and the lines leading to the lake cities and the West in general. The construction of such a line, passing,

Digitized by Google

as it does, over and through the southerly end of the Alleghany Mountains, involves exceptionally heavy work, long tunnels, high viaducts and fills, but full of interest from an engineering standpoint.

I am delightfully situated in the town of Bristol, which lies on the border line between Virginia and Tennessee It is quite a commercial centre, as it is a distributing point for this section of the country. The climate is not unlike that of Asheville, N.C., which is not far south. From all indications I should estimate that this section of the country is the one that should possess wonderful opportunities for development during the next quarter of a century, and I feel fortunate to have entered it at this time.

1899.

DR. M. S. SHERRILL, *Sec.*, Mass. Inst. of Technology, Boston.

On Monday evening, December 18, a very pleasant reunion of men of '99 in the vicinity of Boston was held at Mieusset's Restaurant. There were present W. O. Adams, H. C. Eaton, D. M. Pray, B. R. Rickards, C. L. Morgan, T. C. O'Hearn, R. C. Harrison, C. M. Swan, M. S. Sherrill, Haven Sawyer, Etheredge Walker, Thomas Todd, and P. W. Witherell. After dinner the entire party went to see George Ade's comedy, "Just out of College," at the Park Theatre.—Walter Adams has returned to Boston after an absence of a little more than a year with the Oldsmobile Company of Detroit. The class will always be indebted to Adams for putting the graduate class organization on a firm basis, and the Boston members welcome him back among them. He is now business manager of the Boston office of the Oldsmobile Company.—Harrison, Sawyer, and Walker are unfortunately only visitors with us. For the last few years Sawyer and Walker, who have been together more or less since graduation, have been located in Gazelle, Siskiyou County, California, as mining engineers. At present they are carrying on an investigation of certain gold ores in the Mining Department of the Institute, but expect soon to return to the West. Harrison will remain East till spring, when he, too, will leave for the West. Their experiences and stories of western life are extremely interesting.—Burt Rickards is to be congratulated on his appointment as director of the bac-

Digitized by Google

teriological laboratory of the city board of health. Below is the account taken from the Boston *Herald* of November 4:—

Burt R. Rickards was appointed director yesterday of the bacteriological laboratory of the city board of health. He has been an assistant for five years, so that the appointment is a promotion. He succeeds Dr. Hill, who has gone to Minneapolis.

Mr. Rickards was born in Cambridge in 1876, was educated in the Cambridge schools and the Institute of Technology, where he was graduated in 1899. He made a specialty of chemistry there, and took a large amount of biology in his course. After graduation he taught chemistry for a year in the Lowell Textile School, and in August, 1900, came to the board of health laboratory. There his work has been largely in the diagnosis of infectious diseases and the devising of simpler but surer methods of examining suspected sputum and other dejecta of disease. Mr. Rickards is married, lives in Brighton, and is a member of the American Public Health Association, the Society of American Bacteriologists, the American Chemical Society, and the Massachusetts Association of Boards of Health.

—Frank F. Fowle and Miss Edna Cowper were married on Tuesday, Oct. 17, 1905, at the home of the bride's parents in Buffalo, N.Y. After a wedding sojourn of one month in the Catskill Mountains Mr. and Mrs. Fowle removed to New York City, where they have been at home to their friends since December 1. Mrs. Fowle is a sister of Howard M. Cowper, M. I. T. '05. Fowle is with the American Telephone and Telegraph Company, 15 Dey Street, New York, as special agent of the railway department.—James B. Ellery was in Boston for a few days shortly before Christmas. He seems to like his work as assistant superintendent of the Open Hearth Department of Carnegie Steel Company, Duquesne, Pa. He reports that Benj. P. Hazeltine is doing well with the National Tube Company in McKeesport, Pa.—A letter from W. C. Phalen, of the United States Geological Survey in Washington, dated November 24, states:—

I reached town on the 5th of the month, after a field season of a little more than six months' duration. Five of these months were spent in Kentucky. I surveyed, geologically, nearly the whole of a 30-minute quadrangle; *i.e.*,

Digitized by Google

one-quarter of a square degree in the north-east corner of the Blue Grass State. My field season was a most charming and delightful experience.

—George E. Lynch was married last June to Miss Helen A. Spaulding, of Silver Creek, N.Y. Lynch is with the Jeffries Manufacturing Company, Columbus, Ohio.—Dwight Farnum is on East for a vacation, but will return to Hailey, Ida., as superintendent of the Wood River Zinc Company.

1900.

RICHARD WASTCOAT, *Sec.*, Dedham, Mass.

The secretary has heard of only two members who have lately forsaken the "paths of single blessedness." All Course I. and XI. men will be surprised and pleased to hear that the "doctor" has at last joined the ranks of the married men. "We" (it was addressed Mr. and Mrs., evidently he has the secretary confused with some other poor fellow) received the announcement: "Rev. Samuel Henderson Moore announces the marriage of his daughter Abigail to Mr. Frederick Whitefield Witherell on Tuesday, October seventeenth, nineteen hundred and five, New Castle, Pennsylvania." We extend our congratulations to Witherell. At last accounts he was sanitary engineer with the American Water Works and Guarantee Company of Pittsburg, and tested the different plants controlled by this company regarding the purity of the water supply.—James H. Batcheller (III.) was married Oct. 18, 1905, to Miss Elizabeth T. Field, of Boston, at Mattapoisett, Mass. Our congratulations to Batcheller. The past fall was the first time for over three years that he has been East, and it surely was with a worthy purpose in view that he came this fall. Batcheller has probably seen as much of the Western mining country as any of our Course III. men. In November and December, 1903, he made a mining trip to Mexico City, Achorcado, State of Queretaro, and Santa Barbara, State of Chihuahua, in Old Mexico, and the rest of the winter he spent in Idaho. In June, 1904, he went to the Treadwell Mine in Alaska for a couple of months, and then for six weeks he was further north at the Kensington Mine, Comet City, in Alaska. In

Digitized by Google

October, 1904, he went to the Bourne Gold Mining Company in Bourne, Ore., for eight months, and to the Oregon Smelting and Refining Company at Sumpter in the same State for a month. He is now *en route* for the Mariposa Commercial and Mining Company at Mt. Bullion, Mariposa County, Cal., where he expects to pass the winter.—R. H. Clary (III.), who has been located at Seattle, Wash., has left there, and is now at Benson, Ariz., where he is ore-purchasing agent for the South-western Smelting and Refining Company of that place.—The following item appeared in the *Railway and Engineering Review* under the Engineering and Maintenance of Way column:—

> Mr. P. H. Delano has been appointed division engineer of the Cleveland, Cincinnati, Chicago & St. Louis, in charge of construction on the Cincinnati Division, with headquarters at Middletown, Ohio.

Delano was a member of Course I., and we extend him congratulations on his promotion. He was formerly division engineer on the Buffalo & Susquehanna Railway Company, with headquarters at Belfast, N.Y.—Robert M. Hopkins (VI.), who has been with Charles A. Chapman, consulting engineer, in Chicago, is now located with the Alberger Condenser Company, 800 Liberty Street, New York. Chapman adds one more to the numerous 1900 men in New York City, including at last accounts Barney (XIII.), Blair (VI.), Brooks (II.), Brown, C. H. (X.), Clow (IV.), Ellis (V.), Hall, S. M. (VI.), Jouett (I.), Keith (VI.), McGowan (II.), Merrick (IV.), Pigeon (IV.), Rand (IV.), Price (IV.), Searle (I.), Tudbury (I.), Ziegler (II.). 1900 men ought to have a strong association with so many settled in one city.—Morgan Barney has been in business for himself at 29 Wall Street, New York, for the past three years as a naval architect and yacht broker, and handles everything from a ninety-footer to a row-boat or an ocean liner. Barney lives at the Technology Club at 36 East 28th Street. More 1900 men should make this place their home.—William B. Hough (VI.) is connected with a Chicago concern interested in cement and reinforced concrete construction.—Harry E. Osgood (II.), who was with the Holmes & Blanchard Company, Boston, started in

Digitized by Google

business for himself last February, forming the Osgood Machine Company, which has been very successful. They handle and install all kinds of grain handling machinery and appliances, and are located in Boston.—Harry E. Thayer (V.) is located in Cincinnati, Ohio, and has a fine position as superintendent for the Proctor & Gamble Company. He is married, and has two children.—Walter L. Rapp (IV.) is in business with his father in Cincinnati. They are the best-known firm of architects in that city, and Rapp has lately designed one of the finest bank buildings in the city, which is now in the course of construction. He is also married.—Russell Suter (I.) is out in the Philippines, in the island and town of Cebú. He designated the town as "rotten," the island as a "pile of rocks," and the "Islas Filipinos" as a "d—d hole." Evidently, he is not in love with the country. Suter calls himself an assistant engineer on the Cebú Harbor Improvements, but the secretary has heard a rumor that he has been a medical inspector, sanitary officer, and various other things, including "chief scratcher of arms" when the small-pox was prominent in that region.—Carl F. Gauss (IX.) is at present in charge of the office of the Goldfield Electric Light and Power Company, a sub-company of the Nevada Power Company, and is located at Goldfield, Nev.—Henry C. Morris (III.) is also in Goldfield as superintendent of the Blue Bell Mining Company.—Irving C. Weeks (IX.) is a teacher of physics and chemistry in Williston Seminary, Easthampton, Mass., where he has been for three years. For a year previous to this he was engaged in reform work in the reformatory institution at Windsor, Conn.—Howard R. Dunbar (II.) recently announced his engagement to Miss Helen R. Sumner, of Canton, Mass. Dunbar is at present a draughtsman in the Lamson Consolidated Store Service Company of Boston.—Edward H. Davis (IX.) is instructor of history and economics in Purdue University, West Lafayette, Ind.—Herbert H. Howe (IX.) is with the bonding house of John P. O'Brien & Co., Boston.—Joseph F. Draper (IX.), after leaving Tech, studied at the Harvard Law School, and received the degree of B.L. He is now practising law at 15 State Street, Boston.—George E. Russell (I.) is back at the Institute as instructor in civil engineering, and is assistant to Professor Porter. Russell

Digitized by Google

made a study of hydraulic work while he was instructor at Cornell last year, and has taken up that line of work at the Institute.—Carleton Ellis is now located at 60 Wall Street, New York, as general manager of the Combustion Utilities Company. Ellis is married, and has two children, and resides at White Plains, N.Y. He went to New York as chief engineer of the Eldred Process Company, and the present company in which he is interested is putting in gas producers of Ellis's invention for industrial concerns using gas engines as power. He is also a registered patent attorney.—R. W. Balcom has returned to this country, and his present address is Ann Arbor, Mich. He obtained the Doctor's degree at Heidelberg last summer, and is at present an instructor in general chemistry at the University of Michigan.—Jere. R. Danniell was married on Saturday evening, January 27, to Miss Anna Harding Lippincott, at Christ Church, Woodbury, N.J.

1901.

E. B. BELCHER, *Sec.*, Malden, Mass.

The first informal meeting and dinner of the class was held at the Union on Friday, January 12. During the evening several selections were rendered by a blind vocalist. It is hoped that the members of the class will do what they can to support these meetings, and notify the secretary of any changes in address.—Ralph Whitman (I.) has secured a permanent position with the Panama Canal Commission at Washington. Whitman has just returned from a six months' stay at the Isthmus.—R. E. Simonds (II.), until recently connected with the McKay Shoe Machinery Company of Winchester, has entered the employ of Dean & Main, of Boston, mill architects and engineers.—Harry White (XIII.) is with the National Lead and Paint Company, Philadelphia.—John Ross., Jr., has returned to the Institute as assistant in battleship engineering.—William Whipple (II.) is superintendent of the Cinclair Central Sugar Refinery, one of the finest refineries in Louisiana.—H. R. Gilson (II.) is with the Submarine Telegraph Company of Boston, as mechanical engineer.—W. O. Kennard is recovering from a

Digitized by Google

very severe case of typhoid fever.—A. H. Williams has resigned from the Supervising Architect's Office, Treasury Department, to accept a position with Adams & Schwab in Baltimore.—At a meeting of the Board of Directors of the Newton Street Railway Company, Newton & Boston Railway Company, and Lexington & Boston Railway Company, M. Matthew C. Brush, was elected vice-president.—At the examination held October 17 for assistant engineer, highest grade, Board of Water Supply of New York City, of the nineteen who passed, L. P. Wood was number one on the list. The following six Institute men were also successful: S. D. Dodge, '93, S. K. Clapp, '95, J. L. Hildreth, Jr., '96, J. A. Gutbridge, '97, W. D. Hubbard, '98, and G. T. Seabury, '02. These men are eligible for appointment, at $2,000 per year, to positions in responsible charge of surveys and design, and later of construction.

1902.

C. W. Kellogg, Jr., *Sec.*, El Paso, Tex.

The reports of weddings still continue to come in. Every one in the class will be delighted to learn that Red Proctor was married to Miss Mary Sherwood Hedrick this fall. It will be remembered that Proctor's cards were out for his wedding nearly two years ago (namely, January, 1904), and that he had to flee to Saranac Lake for his health at the last minute.—Place was married to Miss Mabelle Hamilton Boyd at Hyde Park, Mass., on Sept. 18, 1905. They are now at home at 524 West 162d Street, New York City.—Montgomery was married on the 20th of November, 1905, to Miss Louise Titus Severance at Cambridge, Mass.—Rogers has been made manager of the Ponce Railway and Light Company of Ponce, Porto Rico.—Kellogg has been changed by Stone & Webster from the Edison Electric Illuminating Company of Brockton, Mass., to the El Paso Electric Railway Company of El Paso, Tex.—Mendenhall is now with the Utah Light and Railway Company, Salt Lake City, Utah.—Mayo is sanitary and heating engineer in the quartermaster's office at large, War Department, Washington, D.C.—B. G. Philbrick

Digitized by Google

is with the Lederle Laboratory, New York City, address 42 Strong Place, Brooklyn, N.Y.—Capen is with the Nebraska Telephone Company, Omaha, Neb.—C. B. Allen severed his connection with the Westinghouse Machine Company of Pittsburg early in December to take the position of assistant superintendent of marine construction with the New York, New Haven & Hartford R.R. Co., with headquarters in New York City.

1903.

WALTER H. ADAMS, *Sec.*, Polytechnic Inst. of Brooklyn, Brooklyn, N.Y.

On November 4 Goodwin (III.) was married to Miss Rebecca Clematena Headden.—Lounsbury (VII.) appeared in the secretary's office at the Polytechnic Institute one day in November, and said that he was working downstairs in the water analysis laboratory as a chemist for Hazen & Whipple, a firm of New York chemists, having just accepted the position. Since graduation he has been an assistant in the chemical laboratory at the Worcester Polytechnic Institute and chemist in the bureau of chemistry at Washington, D.C.—One day last summer the secretary had a letter from Bay, giving a short history of his adventures since graduation in 1903. After graduation he was a draughtsman with the Newport News Shipbuilding and Dry Dock Company at Newport News, Va. During October, November, and December of 1904 he took a trip around the "Horn" from Norfolk, Va., to Seattle, Wash., on the steamship "Minnesota." Since June, 1905, he has been with the Illinois Steel Company in Chicago, Ill., as a steam expert.—In November the Executive Committee, after strenuous (?) effort, sent off the second annual report, which every one ought to have by this time. On February 15 the first register to be published since graduation will go to the printer, and probably will be mailed by March 1.—The following list will give the location of those whose names did not appear in the July REVIEW: Jackson is with Sturgis & Barton, architects, Boston.—J. R. Jones is in Sanborn, Mexico.—Joyce is a

Digitized by Google

chemist with Arlington Pyraline Company, Arlington, N.J.—Kearney is electrical engineer with Westinghouse Electrical and Manufacturing Company, Wilkinsburg, Pa.—Lang is an architect with Cram, Goodhue & Ferguson, New York.—Lawton is draughtsman in the construction department of New York, New Haven & Hartford R.R., and is located at New Rochelle, N.Y.—Lockridge is engineer for the water department at Springfield, Mass.—Loughlin is doing geological work and studying at Yale.—Lyon is draughtsman in Pawtucket, R.I.—MacDonald is superintendent of the Dominion Cartridge Company's factory at Brownsburg, Quebec.—MacGregor is in the spool business at South Lincoln, Me.—Mason is assistant chemist with American Woollen Company, Washington Mills, Lawrence, Mass.—W. R. McCornack is with Experimental Committee of Museum of Fine Arts, Boston. McIntosh is superintendent of the boiler department for J. J. Case Threshing Machine Company, Racine, Wis.—Mears is assistant superintendent with Consolidated Car Heating Company, Albany, N.Y. —Merrill is chemist with National Calfskin Company at Peabody, Mass.—Millard is engineer on construction work at New Haven, Conn.—Mohler is in Colorado Springs, Col.—Morse is with the Geological Survey in Montana.—Mulherin is assistant engineer with John W. Allison & Co. in Philadelphia, Pa.—Newman is assistant engineer with Kern River Company, Borel, Cal.—Nibecker is sanitary engineer at the Birmingham water works, Birmingham, Ala.—Nields is with mining engineering company in Cleveland, Ohio.—Nutter is manager for N. H. Nutter, wholesale dealer in wood in Lynn, Mass.—Olmstead is chemist with Little & Walker, chemical experts in Boston.—Palmer is designer with H. H. Franklin Manufacturing Company, Syracuse, N.Y.—Parker is with the Bucyrus Company in South Milwaukee, Wis.—Pearsons is wire chief with New York and New Jersey Telephone Company, and is located at Bath Beach, N.Y.—Place is assistant engineer with the United States Geological Society, doing reclamation work, and is located at Denver, Col.—Pulsifer is chemist for Pittsburg & Sonora Gold Company at Bacoachi, Sonora, Mexico.—Raymond is mechanical engineer with Missquoi Pulp Company at Sheldon Springs, Vt.

Digitized by Google

—Regan is draughtsman in the Sewer Division of the Street Department of the city of Boston.—A. P. Rice is inspector of dredging for Massachusetts Harbor and Land Commission in Boston.—Robertson is a paper manufacturer in Hinsdale, N.H.—Robinson is general manager and treasurer for the Gridley Mining Company at Joplin, Mo.—Ruxton is still at the Institute.—Sears is electrical inspector with the Minneapolis Fire Underwriters' Inspection Office at Minneapolis, Minn.—Miss Stevenson is teacher of science in the Howe School at Billerica, Mass.—Stiles is head of the firm of H. A. Stiles & Co. in Boston, who are the sole Eastern agents for Hamilton Emery and Corundum Company.—Strong is a travelling salesman for Farbenfabriken of Elberfeld Company of New York.—Sumner is with F. W. Bird & Son, paper manufacturers, East Walpole, Mass.—Swett is still at the Institute.—Taylor is an assistant in the department of small motors at the West Lynn works of the General Electric Company.—Thwing is a machinist at Newton Upper Falls, Mass.—Tolman is studying at the Institute.—Tuell is assistant to the superintendent of the Terre Haute (Ind.) Traction and Light Company.—Underwood is assistant superintendent of blast furnace for the National Tube Company at Wheeling, W. Va.—Wehner is chief draughtsman with the Bucyrus Company at South Milwaukee, Wis.—Whitehead is manufacturing chemicals at Medford, Mass.—R. B. Williams is metallurgist with the South American Development Company at Guayaquil, Ecuador.—Winchester is with Stone & Webster in Boston.

1904.

CURRIER LANG, *Sec.*, Crafton, Pa.

The class letter this time might better be labelled the scrap heap than anything else. There is no news of the whole body, but the members have been active, and the quiet observer who listens for sounds from the class hears only a steady hum that means "All busy." The following individual notes are all that have sounded above the hum: Bernard Blum is with the Chicago Junction Railway Company on sewer work and the construction of a large freight

Digitized by Google

house.—E. W. Charles is in the gas engine department of the Snow Steam Pump Works.—Captain Curtis has lately accepted a position with the New York, New Haven & Hartford R.R. as transitman in the real estate department, and will have his headquarters at New Haven.—Charlie Rodgers has gone to work for the Lamson Company, which is a part of the American Pneumatic Service Company, as assistant to the superintendent in the Lowell factory.—Evans is a draughtsman in the special construction department of the same company.—Earl Ovington was unfortunate enough to be burned out of his factory a short time ago.—C. E. Broad is a draughtsman (reported to be the only one) with the Stanley Motor Vehicle Company at Newton, Mass.—R. E. Havens is with the Santa Fé Railroad at Trinidad, Col.—W. A. Hyde is acting as electrical expert for the Bureau of Ordnance of the Navy Department, Washington, D.C.—C. H. Brigham is clerk and treasurer for the Architectural Testing and Inspecting Bureau of Boston.—G. W. Francis, a former member of the class, is now in Delaware State College, but hopes to be able to return to Tech later and take a degree.—"Bob" Phinney is with the Swan Electric Company.—H. B. Cooper is with Stone & Webster.—F. K. Merriman is with the Moren Engineering and Construction Company of St. Louis, and is located at Apalachicola, Fla.—At least three weddings of members of our class have taken place since the last class letter was written. On Tuesday November 21, H. E. Thompson was married to Miss Mabel Anne Tracy at South Coventry, Conn.—E. O. Hiller was married to Miss Brown, of Newton Centre, Mass, two of the ushers at the wedding being Homer and Holcombe of the class.—J. F. Card was married on September 20 to Miss Blanche Felt, of Chicago. The wedding took place in the pretty Kenwood Parish Church in Hyde Park, and was more or less a Tech affair. Among the ushers were C. J. Emerson and C. Lang.—Others of our class have undoubtedly left their former state of single blessedness, but they are not publishing the fact.

Digitized by Google

1905.

R. H. W. LORD, *Sec.*, 248 Tremont Street, Newton, Mass.

W. G. Bent and J. H. Payne, who are with the Eastman Kodak Company at the Kodak Park works, write that they like the work very much. There are eight Tech men in the factory.—Chesterman (Course VI.) has been in Rochester for a month, investigating long-distance transmission for the American Telegraph & Telephone Company.—R. H. White (Course VIII.) is with Charles H. Jacobs, Laboratory, New York City.—We hear that the firm of Dean, Lambie & Jones has been formed in Buffalo. All members of the firm are 1905 men, and, being the first to start out for themselves, we all wish them success.—William G. Houskeeper's address has changed to 703 Pitt Street, Wilkinsburg, Pa.—R. L. Segar has been compelled to leave the Institute on account of a complete nervous breakdown. —The 1905 class dinner will be held at Marliave's, 11 Bosworth Street. Having had to undergo a surgical operation, the secretary has been unable to make definite arrangements; but notices to all members of the class will be sent out later.—Bent, Marcy, Eichler, P. M. Smith, and R. Davis were seen around the Institute at Christmas time.—We are pleased to hear that Bushnell has been elected secretary of the Technology Club.—A. J. Amberg, of Chicago, was in Boston about December 1 on business.—Thomas G. Pinkerton was married January 1 to Miss Gertrude Ann Caskin of Danvers. After February 1 they will be at home, 820 Beacon Street, Boston.

Since the last issue of the REVIEW the address and occupation of the following men has been determined:—

William W. Ammen (XIII.), 1112 N. Eutaw Street, Baltimore, Md.
Assistant Examiner, United States Patent Office, Washington, D.C.

Courtlandt W. Babcock (VI.), care Westinghouse Electric Company, Pittsburg, Pa. Apprentice with Westinghouse Electric Company.

James P. Barnes (VI.), The Snowdon, Syracuse, N.Y.
Designer with Pass & Seymour.

Robert S. Beard (I.), 38 S. Beaver Street, York, Pa.
City Draughtsman.

Digitized by Google

Raymond E. Bell (II.), 146 Madison Avenue, New York.
Assistant Engineer with James B. Snook's Sons.

Lloyd T. Buell (III.), Copperhill, Tenn.
With Tennessee Copper Company.

T. Breckinridge Cabell (VI.), 516 W. Broadway, Louisville, Ky.
Electrician with H. I. Wood, Electrical Contractor.

S. A. Caine (XIII.), 1077 Boylston Street, Boston, Mass.
Graduate Student, M. I. T.

F. M. Carhart (I.), 231 So. Cleveland Avenue, Pocatello, Ida.
Instrument Man with Oregon Short Line R.R.

Francis I. Chesterman (VI.), 26 Shurtleff Street, Chelsea, Mass.
Engineering Department, American Telegraph & Telephone Co.

Robert Keep Clark (II.), 460 Dearborn Avenue, Chicago, Ill.
With George M. Clark & Co., Manufacturers Gas, Gasoline, and Coal Stoves.

W. D. Clarke (I.), Eureka, Cal.
Assistant Engineer, Oregon & Eureka R.R.

Sidney L. Cole (II.), Niagara Falls, South Ontario, Can.
With Ontario Power Company.

Leonard W. Cronkhite (IV.), Worcester College, Oxford, England.
Rhodes Student.

Joseph Daniels (III.), Glace Bay, N.S.
Engineer, Dominion Coal Company, Ltd.

L. J. T. Décary (IV.), Quebec, Canada.
Architect, with Mr. Guy Lowell.

Emmit Dwyer (II.), 692 Jefferson Avenue, Detroit, Mich.
With Michigan Stove Company.

Thomas W. Estabrook (V.), South Glens Falls, N.Y.
Assistant Superintendent, Finch, Pruyn & Co.

Arthur E. Freeman (II.), 24 Summer Street, Claremont, N.H.
With Sullivan Machine Company.

Harry R. Gabriel (I.), Seward, Alaska, care Alaska Central R.R.
Resident Engineer, Ninth Residency, Alaska Central R.R.

Percy A. Goodale, Sp., 10 Post-office Square, Boston.
Agency Superintendent, Preferred American Insurance Company, insurance of all kinds.

Arthur N. Hastings (IX.), 26 Dana Street, Cambridge, Mass.
Clerk with Central Trust Company, Cambridge.

Daniel Hine (XIII.), 54 Vernon Street, Hartford, Conn.

Digitized by Google

Carl T. Humphrey (I.), 431 Middle Street, East Weymouth, Mass.
Assistant at M. I. T.

T. Edward Jewett (I.), care Ferro-Concrete Construction Company, Cincinnati, Ohio.
With Ferro-Concrete Construction Company.

Alfred H. Kelling (V.), 710 North 8th Street, East St. Louis, Ill.
Chemist with N. Morris & Co.

Louis J. Killion (I.), 1238 Allegheny Avenue, Philadelphia, Pa.
Draughtsman with Lewis F. Shoemaker & Co.

Edwin M. Lines (VI.), 603 Hampton Avenue, Wilkinsburg, Pa.
Apprentice with Westinghouse Electric and Manufacturing Company.

John H. McManus (I.), 2 Winter Street, Dorchester.
Assistant in Civil Engineering Department at M. I. T.

Alden Merrill (V.), 16 Tremlett Street, Dorchester, Mass.
Student at Tech.

Edward F. Moody (V.), Technology Chambers, Boston.
Chemist with the Simplex Electrical Company.

Theodore P. Moorehead (I.), care Ferro-Concrete Construction Company, 430 Culvert Street, Cincinnati, Ohio.
With Ferro-Concrete Construction Company.

Ilias A. Murr (I.), 370 W. Church Street, Elmira, N.Y.
Draughtsman, American Bridge Company.

Victor H. Paquet (XIII.), 89 Union Street, Bath, Me.
In Engineering Department, Bath Iron Works.

Charles R. Prichard (II.), 40 Nahant Street, Lynn, Mass.
With Beverly Gas and Electric Company.

Paul J. Ralph (XIII.), 1032 Girard Avenue, Philadelphia, Pa.
Ship fitter with William Cramp & Sons, S. & E. B. Co.

N. A. Richards (IV.), 362 Front Street, Weymouth, Mass.
Draughtsman with Purdy & Henderson, Boston, Mass.

A. B. Russell (XIII.), 2 Franklin Street, Medford, Mass.
Draughtsman with Horton & Hemenway.

R. W. Senger (III.), 323 Quincy Street, Pueblo, Col.
In Open Hearth Department, Colorado Fuel and Iron Company.

Wilham F. Smart (II.), Technology Chambers, Boston.
With H. P. Converse & Co., 120 Milk Street, Boston.

Arthur E. Spencer (III.), Foxboro, Mass.
Transitman, Boston & Providence Electric Railway.

Digitized by Google

Alfred E. Tadgell (VI.), 8 Rowland Street, Marblehead, Mass.
Clerk with Bay State Trust Company, Boston, Mass.
Married Grace A. Dow March 8, 1904. Child born December 20, 1904.

J. W. Taylor (II.), 4412 Winton Road, Cincinnati, Ohio.
With Proctor & Gamble Co.

C. E. Warren (II.), M. I. T., Boston.
Student.

Edward W. Washburn (V.), M. I. T., Boston.
Research Assistant.

H. L. Whitney (I.), Beverly, Mass.
Resident Engineer, city of Beverly.
Married Tuesday, Nov. 28, 1905, at Natick, to Eleanor D. Whitney.

Russell Willson (I.), United States Naval Academy, Annapolis, Md.
Midshipman, United States Navy.

Louis C. Winship (VI.), 408 Whitney Avenue, Wilkinsburg, Pa.
Apprentice, Westinghouse Electric and Manufacturing Company.

Robert Libbey Young (V.), Hotel Prescott, East Pepperell, Mass.
Chemist with Champion International Paper Company.

Elmer W. Wiggins (V.).
With A. D. Little, Consulting Chemist.

Digitized by Google

The Technology Review

A QUARTERLY MAGAZINE
DEVOTED TO THE
INTERESTS OF THE
MASSACHUSETTS INSTITUTE
OF TECHNOLOGY

AND

PUBLISHED BY THE ASSOCIATION OF CLASS SECRETARIES

83 NEWBURY STREET, BOSTON

The Review aims to develop closer relations among Institute men and to stimulate their interest in the work of the College.

It is in no sense an engineering magazine, but deals broadly with the problems of Technological Education and the responsibilities of the professional man.

THE REVIEW is published during January, April, July, and October. Communications should be addressed to THE TECHNOLOGY REVIEW, 83 Newbury Street, Boston, Mass.

SUBSCRIPTION, ONE DOLLAR A YEAR
SINGLE COPIES, THIRTY-FIVE CENTS

Volumes I., III., IV., and V., finely bound in half morocco, are ready for delivery at $2.00 each, or will be exchanged for unbound sets, provided they are in good condition, at $1.00 each. (If sent by mail, 30 cents extra.) Volumes VI. and VII. at $2.25 each, or they will be exchanged for unbound sets at $1.25 each.

Digitized by Google

Some Comments on the Review

[From the Boston *Herald*, Sunday, February 14, 1904.]

No other college periodical that comes to our table has the freshness, readableness, and fine flavor of earnestness of the *Technology Review*. Primarily, of course, the *Review* is an arena for exploitation of the ideal of the Institute of Technology, dissemination of information about it and the cultivation of loyalty; but this purpose is pursued so broadly and generously that the publication has become not only interesting, but important, to the educational world generally, and especially to all who are concerned with the development of that motive and mode of education which the Institute exists to exemplify. The value of its contents is high, and the tone throughout is lofty and generous.

BOSTON, MASS.

. . . "I consider the REVIEW one of the very best things of its kind and most useful to the Institute."

Professor ———.

DENVER, COL.

"The TECHNOLOGY REVIEW is all right. Count on me as a subscriber for life. Every man at the M.I.T. should have it."

———, '87.

SAN JUAN, P.R.

. . . "I find it very interesting, and the only way I can keep track of what is doing in and for the Institute."

———, '89.

HACKENSACK, N.J.

"THE REVIEW is A1, and I congratulate the Committee on their success. I will try to get my share of new subscribers."

———, '91.

SO. BETHLEHEM, PA.

"I hardly know what I should do without it. The REVIEW deserves the best possible financial support, just as it does the personal and collective thanks of all our alumni."

———, '93.

WILKINSBURG, PA.

. . . "I should be sorry to miss a single number of the REVIEW."

———, '98.

NEW YORK, N.Y.

"No Tech man should consider a year well spent unless he has paid his next year's subscription to the REVIEW."

———, '98.

PORTLAND, OR.

. . . "THE TECHNOLOGY REVIEW is a credit to Tech and to the Association of Class Secretaries, and every alumnus should take it."

———, '04.

Digitized by Google

Morse Twist Drill and Machine Co.

NEW BEDFORD, MASS., U.S.A.

Makers of

INCREASE AND CONSTANT ANGLE
TWIST DRILLS, REAMERS, CHUCKS,
MILLING CUTTERS, TAPS, DIES,
MACHINERY AND MACHINISTS' TOOLS

THE MASON REGULATOR CO.

INCORPORATED 1883

STANDARD STEAM SPECIALTIES

Reducing Valves, Damper Regulators, Pump Governors,
and Automatic Appliances of all descriptions for the regulation and control of Steam; Water, and Air Pressures.

158 SUMMER STREET, COR. FEDERAL STREET, BOSTON, MASSACHUSETTS

WORKS AT DORCHESTER LOWER MILLS, MASS.

Digitized by Google

The Technology Review

Contents of Volume VI.

Volume VI. January, 1904 Number 1

FRONTISPIECE: Laboratory of Dynamo-electric Machinery, looking South.

THE AUGUSTUS LOWELL LABORATORIES OF ELECTRICAL ENGINEERING Harry E. Clifford, '86

THE COURSE IN GENERAL STUDIES Arthur A. Noyes, '86

THE JUNE ALUMNI REUNION Henry S. Pritchett

THE OBSERVANCE OF COMMENCEMENT BY THE ALUMNI Frederick H. Fay, '93

THE TREASURY DEPARTMENT Julian E. Woodwell, '96

LOWELL INSTITUTE SCHOOL FOR INDUSTRIAL FOREMEN Charles F. Park, '92

EDITORIALS:

THE INSTITUTE:
Corporation Notes.— Registration Notes.— Changes in Entrance Requirements.— Publications.— General A. P. Rockwell.— Conference of Teachers.—The British Education Commission.— General Notes.— Department Notes.— Society of Arts.

THE UNDERGRADUATES:
Class and Other Officers.— Convocations.— President Pritchett to the Freshmen.— The Honor System.— Athletics.— Dinners and Receptions.— Notes.

THE GRADUATES:
Annual Meeting of the M. I. T. A. A.— The Northwestern Association of the M. I. T.— The Technology Club of New York.— The Washington Society of the M. I. T.— Association of Class Secretaries of the M. I. T.— The Technology Club.— News from the Classes.

BOOK REVIEWS:
Williams's "High School Chemistry in its Relation to the Work of a College."—Boutelle's "Man of Mount Moriah."— Elson's "Woman's Work in Music."

Volume VI. July, 1904 Number 3

FRONTISPIECE: The Rogers Building.

THE FIRST TECH REUNION.

THE PROPOSED COMBINATION WITH HARVARD.

THE GORDON McKAY ENDOWMENT.

THE TECHNOLOGY FUND.

THE INSTITUTE:
Corporation Notes.— Faculty Notes.— Entrance Examinations.— Department Notes.— Society of Arts.

THE UNDERGRADUATES:
Junior Week.— Professional Societies —Class Organizations and Clubs.— The Annual Meet.— The Dartmouth Meet.— Amherst Meet — Notes.

THE GRADUATES:
The Washington Society of the M. I. T.— The Technology Club of the Merrimack Valley.— The Tech Society of Philadelphia.— The Annapolis Society of the M. I. T.— The Connecticut Valley Association, M. I. T.— News from the Classes.

NECROLOGY: Julian Abbot Kebler, '78.

BOOK REVIEWS:
Dewey's "Employees and Wages."— Pearson's "Life of John A. Andrew, Governor of Massachusetts, 1861-1865."

Volume VI. April, 1904 Number 2

FRONTISPIECE: The Tennis and Racquet Club, Boston, Mass.

THE TENNIS AND RACQUET CLUB, BOSTON, MASS. Francis W. Chandler

A LABORATORY COURSE IN INDUSTRIAL CHEMISTRY William H. Walker

THE JUNE REUNION H. W. Tyler, '84

THE PROPOSED HARVARD-TECHNOLOGY MERGER.

THE COURSE IN GENERAL STUDIES.

THE INSTITUTE:
The Corporation.— General Alfred P. Rockwell.— Summer Courses.— Summer School of Mining.— Exhibit at St. Louis.— Notable Meetings.— Reception to Mrs. William Barton Rogers.— General Notes.— Department Notes.

THE UNDERGRADUATES:
The Tech Show.— Professional Societies.— Class Organizations and Clubs.— Y. M. C. A Meeting.— The Honor System — Senior Election.— The Tech Hop.— Freshman Battalion Review.—The Library.—Athletics.

THE GRADUATES:
The North-western Association of the M. I. T.— The Technology Club of New York.— Washington Society of the M. I. T.— The Technology Club of Cincinnati. — The Technology Club of the Merrimack Valley.— Technology Men of Montana.— The Association of the Women of the M. I. T.— Association of Class Secretaries of the M. I. T.— The Technology Club.— Communication.— News from the Classes.

BOOK REVIEWS:
Richard's "Ore Dressing."— Munroe's "Adventures of an Army Nurse."

Volume VI. October, 1904 Number 4

FRONTISPIECE: Bust of William Barton Rogers by T. H. Bartlett.

WILLIAM BARTON ROGERS James P. Munroe

ADDRESS AT THE CASE SCHOOL OF APPLIED SCIENCE John R. Freeman

FREDERIC FIELD BULLARD (The Man) Gelett Burgess

FREDERIC FIELD BULLARD (The Musician) Leo R. Lewis

THE TECHNOLOGY FUND.

THE BUREAU OF STANDARDS Albert S. Merrill

THE INSTITUTE:
Corporation Notes.— The New Year.— Faculty Notes. — Summer Courses.— Department Notes.

THE GRADUATES:
Alumni Association of the M. I. T.— Reunion Expenses.— Reunion Stunt Prize.— Washington Society of the M. I. T.— The Tech Society of Philadelphia.— News from the Classes.

NECROLOGY: Jerome Sondericker.— Kilburn Smith Sweet.

BOOK REVIEWS:
"The Institute."—"The Tech."—"Technique," 1905.

Digitized by Google

THE TECH

PUBLISHED EVERY MONDAY, WEDNESDAY, AND FRIDAY DURING THE COLLEGE YEAR BY STUDENTS OF THE MASSACHUSETTS INSTITUTE OF TECHNOLOGY

Alumni desiring to keep in touch with their Alma Mater should read *The Tech*

Gives all the Technology news, covering not only undergraduate activities, but all matters connected in any way with the Institute, such as alumni news, the question of future location, etc. Alumni are especially requested to inform *The Tech* of their movements.

---

86 ISSUES, $1.50 PER YEAR

CHARLES T. BARTLETT, '06
Editor-in-chief

JOHN C. BROOKS, '08
Business Manager

To the Alumni:

TECHNIQUE

Is the year-book of the students of the Massachusetts Institute of Technology.

VOLUME XXI.

—— WILL BE ——

published in April, 1906, by the Class of 1907

This year's number will maintain the high standard of former years and contain much of interest to graduates. Keep in touch with student activity at the Institute by subscribing for a copy.

ALBERT H. DONNEWALD,
Editor-in-chief

GEORGE A. GRIFFIN,
Business Manager

Digitized by Google

Star Brass Manufacturing Company

MANUFACTURERS OF

EXTRA HEAVY RENEWABLE SEAT GLOBE, ANGLE, CROSS, CHECK, Y, AND BLOW-OFF VALVES

Warranted not to leak on high pressures. All parts renewable

All valves tested at 1,000 lbs., cold water

MAIN OFFICE AND WORKS

108–114 EAST DEDHAM STREET . BOSTON, MASS.

New England Structural Company

STEELWORK

SALES OFFICE
110 State Street
BOSTON, MASS.

WORKS
Second Street
EVERETT, MASS.

W. B. DOUGLASS, '92, *Vice-Pres. and Gen. Mgr.*
C. N. FITTS, '91, *Sec. and Asst. Treas.*

---

14 BEACON STREET BOSTON, MASS.

THOMAS TODD, PRINTER

TELEPHONE 601 HAYMARKET

GEO. H. ELLIS CO., *Printers*

NO. 272 CONGRESS STREET, BOSTON, MASSACHUSETTS

ILLUSTRATING, PRINTING, AND BINDING OF MAGAZINES, BOOKS, CATALOGUES, PAMPHLETS, ALSO JOB PRINTING, LAW, RAILROAD, AND MERCANTILE WORK *Telephone, 1549 Main*

Digitized by Google

We sell

COTTON MACHINERY IMPROVEMENTS

For Spinning
Spooling
Warping
Twisting
Chain-dyeing
and Weaving

DRAPER COMPANY

Hopedale, Mass.

WILLIAM F. DRAPER, *President*
GEORGE A. DRAPER, *Treasurer*, M. I. T., '76
EBEN S. DRAPER, *Agent*, M. I. T., '78
GEORGE OTIS DRAPER, *Secretary*, M. I. T., '87

Digitized by Google

COCHRANE HEATER

Would You Save Coal?

A Cochrane Heater will save from 5 to 20 per cent of your fuel bill, according to your conditions.

Do You Need More Steam?

A Cochrane Heater will increase the steaming capacity of your boilers without increasing your coal bill, by feeding *hot* water to your boilers (water at 200°-210°F.), relieving the boilers of part of the work of heating the water, saving the cost of extra boilers and the space they would require.

Have You Scale in Your Boilers?

A Cochrane Heater will give you all the purification obtainable by heating the water to the temperature of exhaust steam — by settlement, filtration, and flotation — and by using, as boiler feed, the pure exhaust condensed in heating the water.

Is Your Water Supply Scarce or Costly?

Ordinarily a Cochrane Heater will save about one-seventh of the water now required by your boilers, utilizing in its place the pure, hot condensation of exhaust steam that has been freed from oil.

Catalogue 53-H on request.

HARRISON SAFETY BOILER WORKS

3192 N. 17th STREET PHILADELPHIA, PA.

Digitized by Google

Vol. VIII. April, 1906 No. 2.

THE TECHNOLOGY REVIEW

A QVARTERLY MAGAZINE RELATING TO THE MASSACHVSETTS INSTITVTE OF TECHNOLOGY

PVBLISHED AT
83 NEWBVRY STREET BOSTON BY THE
ASSOCIATION OF CLASS SECRETARIES

Copyright, 1906, by Association of Class Secretaries, M. I. T.

Digitized by Google

THE

MASSACHUSETTS

INSTITUTE OF TECHNOLOGY

BOSTON, MASS.

THE MASSACHUSETTS INSTITUTE OF TECHNOLOGY aims to give thorough instruction in *Civil, Mechanical, Chemical, Mining, Electrical,* and *Sanitary Engineering;* in *Chemistry, Architecture, Physics, Biology, Geology,* and *Naval Architecture.* The Graduate School of Engineering Research offers courses leading to the degree of Doctor of Engineering.

To be admitted to the Institute, the applicant must have attained the age of seventeen years, and must pass examinations in algebra, plane and solid geometry, physics, history of the United States (or ancient history), English, French, and German. Preparation in some one of a series of elective subjects is also required. A division of these examinations between different examination periods is allowed. In general, a faithful student who has passed creditably through a good high school, having two years' study of French and German, should be able to pass the Institute examinations.

Graduates of colleges, and in general all applicants presenting certificates representing work done at other colleges, are excused from the usual entrance examinations and from any subjects already satisfactorily completed. Records of the College Entrance Examination Board, which holds examinations at many points throughout the country and in Europe, are also accepted for admission to the Institute.

Instruction is given by means of lectures and recitations, in connection with appropriate work in the laboratory, drawing-room, or field. To this end extensive laboratories of chemistry, physics, biology, mining, mechanical engineering, applied mechanics, and the mechanic arts, have been thoroughly equipped, and unusual opportunities for field-work and for the examination of existing structures and industries have been secured. So far as is practicable, instruction is given personally to small sections rather than by lectures to large bodies of students.

The regular courses are of four years' duration, and lead to the degree of Bachelor of Science. In most courses the work may also be distributed over five years by students who prefer to do so. Special students are admitted to work for which they are qualified; and advanced degrees are given for resident study subsequent to graduation.

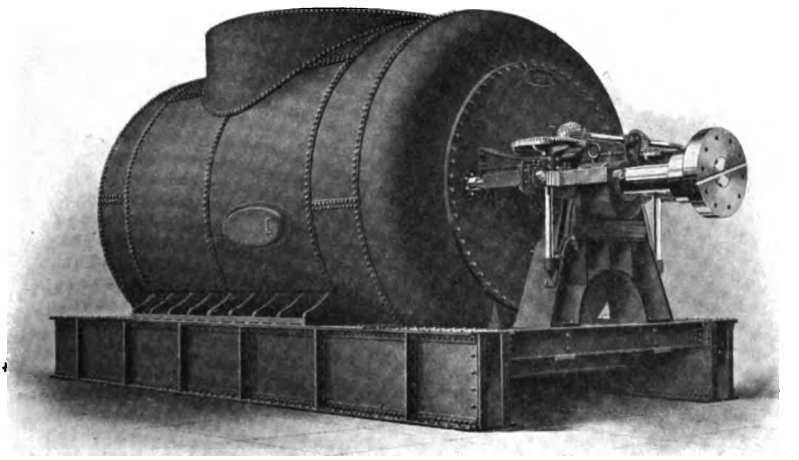
The tuition fee, not including breakage in the laboratories, is $250 a year. In addition, $30 to $35 per year is required for books and drawing materials.

For catalogues and information, address

H. W. TYLER, *Secretary,*
491 Boylston Street, Boston.

Digitized by Google

TURBINE WATER WHEELS



Pair 5,000 h.p. Cylinder Gate Wheels, 80 feet head. 35,000 h.p. of these wheels are operating generators in the Spier Falls plant of the Hudson River Water Power Company, Glens Falls, N.Y.

We make a specialty of designing wheels to suit all conditions

S. MORGAN SMITH COMPANY,

BOSTON OFFICE 176 Federal Street — **YORK, PENNSYLVANIA**

THE ATLANTIC WORKS

INCORPORATED 1853

BORDER, MAVERICK, AND NEW STREETS, EAST BOSTON

BUILDERS OF

Stationary... **BOILERS** and Marine

Plate and Sheet Iron Work of Every Description

STEAMSHIPS, TOW BOATS, STEAM YACHTS AND HEAVY MACHINERY

SAMSON CORD

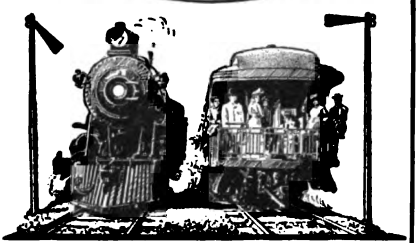
Warranted perfect braid and smooth finish.
Cotton, Linen, Italian Hemp. All sizes and colors.

SAMSON SPOT CORD

SAMSON CORDAGE WORKS ∴ *BOSTON, MASS.*

Digitized by Google

CHICAGO & ALTON RAILWAY



"COMING AND GOING"
"THE ONLY WAY"
BETWEEN
CHICAGO
ST. LOUIS
KANSAS CITY
AND PEORIA

GEO. J. CHARLTON, Gen. Pass. Agent, Chicago, Ill.

Hub Engraving Company

Photo-Gravings
Half-Tones
Relief Plates

173 Summer St., BOSTON

A. D. LITTLE, '85

H. J. SKINNER, '99
H. S. MORK, '99
F. A. OLMSTED, '03
C. F. SAMMET, '03
T. C. PINKERTON, '05

Arthur D. Little

Chemical Expert and Engineer

93 Broad Street
BOSTON

CHEMICAL CONTROL OF MATERIAL AND PROCESSES

SAMUEL CABOT

MANUFACTURING CHEMIST

Creosote Shingle Stains, Sheathing and Deafening
"Quilt," Lampblack, Brick Preservative,
Conservo Wood Preservative, Etc.

141 Milk Street Boston, Mass.

GEO. H. BARRUS, '74

EXPERT AND
CONSULTING STEAM ENGINEER

Pemberton Building
12 Pemberton Square
BOSTON

Digitized by Google

STEPHEN CHILD, '88

LANDSCAPE ARCHITECT
AND
CONSULTING ENGINEER

Ford Bldg., 15 Ashburton Pl., Boston, Mass.

Member Am. Soc. Civ. Engrs. Telephone

E. H. GOWING, '77

ENGINEER

12-22 Pemberton Square, Boston, Mass.

HARVEY CHASE & COMPANY

PUBLIC ACCOUNTANTS AND AUDITORS

RECENT EXAMINATIONS:
City of Boston, City of Chicago, State of Ohio, City of Minneapolis, Boston Gas Companies, Manufacturing Companies, Savings Banks, Trust Companies, etc.

27 State Street, Boston

Telephone, 3660 Main

GILES TAINTOR

COUNSELLOR AT LAW

101 MILK STREET

BOSTON

E. K. TURNER, '70

CIVIL ENGINEER

53 State Street, Boston, Mass.

ELLEN H. RICHARDS, '73

SANITARY ANALYSES OF WATER SUPPLIES

Consulting Chemist on Food and Dietaries

Massachusetts Institute of Technology,

BOSTON

F. B. KNAPP, S.B., '79

PRINCIPAL OF

POWDER POINT SCHOOL, DUXBURY, MASS.

Prepares for Massachusetts Institute of Technology, College, or Business

---

F. W. DEAN CHARLES T. MAIN, '76

DEAN & MAIN

MILL ENGINEERS AND ARCHITECTS

Exchange Building 53 State Street

Boston, Mass.

LEONARD METCALF, '92

M. AM. SOC. C. E.

14 Beacon Street, Boston, Mass.

Telephone, HAYMARKET 1982-3

Water Supply, Sewerage, and Other Engineering Works

ROBERT H. RICHARDS, '68

PROFESSOR OF MINING ENGINEERING AND METALLURGY

Massachusetts Institute of Technology, Boston, Mass.

Consulting Engineer on Ore Dressing

Digitized by Google

STONE & WEBSTER

ELECTRICAL EXPERTS AND ENGINEERS

BOSTON, MASS.

CHARLES A. STONE, '88
EDWIN S. WEBSTER, '88
RUSSELL ROBB, '88

MERRIMAC CHEMICAL CO.

75 AND 77 BROAD STREET, : : BOSTON, MASS.

MANUFACTURERS OF

Oil Vitriol	Sulphate of Alumina	Bisulphite of Soda
Muriatic Acid	Chloride of Alumina	Hyposulphite of Soda
Nitric Acid	Hydrate of Aluminum	Tin Crystals, etc.
Acetic Acid	Acetate of Alumina	Aqua Ammonia
Acetate of Soda	Glauber's Salt	Wood Alcohol
Alum	Sulphate of Soda	Colors

S. W. WILDER, Treasurer — HENRY HOWARD, Vice-President

DAVIS FOUNDRY COMPANY

LAWRENCE, MASS.

JAMES F. LANIGAN, Proprietor

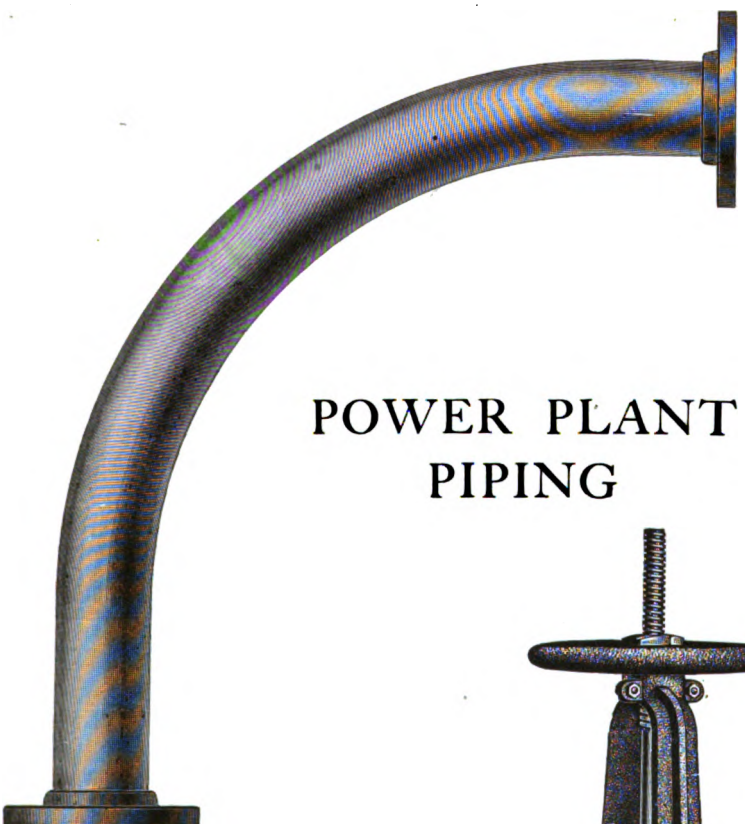
Structural Iron Work of all descriptions

Machinery and Architectural Casting

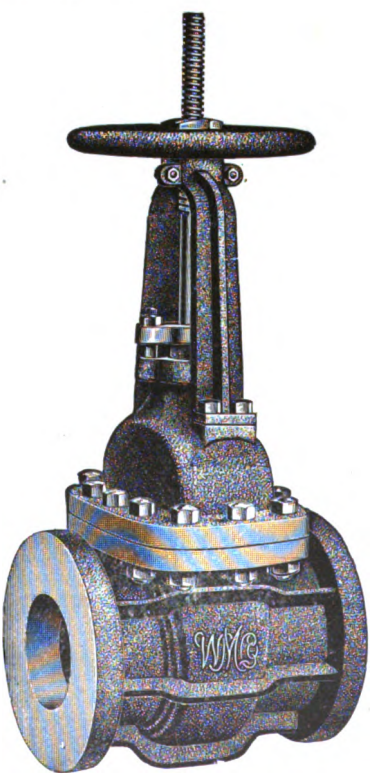
JAMES F. LANIGAN, JR., '94, Agent

Digitized by Google

WALWORTH
MANUFACTURING COMPANY
BOSTON, U.S.A.



POWER PLANT
PIPING



Extra Heavy
Valves and Fitting for
High Pressure Plants.

Walmanco.
Pipe Joints.

GENERAL OFFICES
132 Federal Street

Digitized by Google

Draft Without a Chimney

is the order of the day

A fan does the business and costs far less than a chimney. It burns the cheapest fuels, increases the steaming capacity of the boilers, is independent of wind or weather, and possesses a host of other advantages which are presented in our Catalogue No. 110. Send for it.

B. F. Sturtevant Company
BOSTON, MASS.

General Offices and Works, HYDE PARK, MASS.

New York Philadelphia Chicago London

Designers and Builders of Heating, Ventilating, Drying, and Mechanical Draft Apparatus; Fans, Blowers, and Exhausters; Steam Engines, Electric Motors, and Generating Sets; Fuel Economizers; Forges, Exhaust Heads, Steam Traps, etc.

517

SIMPLEX

RUBBER INSULATED
HIGH or LOW TENSION

WIRES & CABLES

AERIAL SUBMARINE
UNDERGROUND

EVERETT MORSS President CHAS. A. MORSS Treasurer
HENRY A. MORSS Vice Pres. J. H. MASON Gen. M'g'r.

THE SIMPLEX ELECTRICAL CO
110 STATE STREET BOSTON

Digitized by Google

MAY 9 1906

The Technology Review

Volume VIII. April, 1906 Number 2

Contents

TECHNOLOGY . . . . . L. M. PASSANO

EDWARD ATKINSON . . . . . JOSEPH P. GRAY

A SUGGESTED PLAN FOR A LARGER UTILIZATION OF THE PRESENT PROPERTY OF THE INSTITUTE T. H. SKINNER

THE FEDERAL POLYTECHNIC AT ZÜRICH . . H. W. TYLER

THE TECHNOLOGY FUND: ADDRESS OF MR. F. P. FISH

INSTITUTE GRADUATES AT GERMAN UNIVERSITIES

EDITORIAL

THE INSTITUTE:

Corporation Notes.—Faculty Notes.—Publications.—General Studies.—Summer Courses.—General Notes.—Department Notes.

THE UNDERGRADUATES:

The Classes.— Professional Societies.— Clubs.— Kommers.— Tech Show: "The Freshman."—Y. M. C. A.—Athletics.—N. E. I. A. A.—Indoor Dual Meet.—Cross Country.—Fencing Association.—Track Team.—Tennis Association.

THE GRADUATES:

Commencement.—North-western Alumni Association.—Technology Club of New York.—Technology Club of Philadelphia.—Washington Society of the M. I. T.—Technology Club of the Merrimack Valley.—Cincinnati M. I. T. Club.—Technology Club of New Bedford.—Technology Club of Hartford, Conn.—Vermont Technology Association.—Minnesota Alumni Association.—Technology Club of Cleveland.—The Technology Club.—News from the Classes.

NECROLOGY:

Theodore Spencer, '91.—Frederick Talmadge Towne, '93.—Henry Tyler Woods, '93.

BOOK REVIEWS:

Pritchett's "What is Religion?"—Humphrey's "The Indian Dispossessed."

Digitized by Google

ASSOCIATION OF CLASS SECRETARIES

OF THE

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

FREDERIC H. FAY, *Secretary* CHARLES F. READ, *Assistant Secretary*

Class Secretaries

ROBERT HALLOWELL RICHARDS, '68
HOWARD ADAMS CARSON . . '69
CHARLES ROBERT CROSS . . . '70
EDWARD WARREN ROLLINS . . '71
CALVIN FRANK ALLEN . . . '72
SAMUEL EVERETT TINKHAM . '73
CHARLES FRENCH READ . . . '74
EDWARD A. W. HAMMATT . . '75
JOHN RIPLEY FREEMAN . . . '76
RICHARD AUGUSTUS HALE . . '77
LINWOOD ORVILLE TOWNE . . '78
HARRY HUGHES CAMPBELL . . '79
GEORGE HUNT BARTON . . . '80
FRANK ELDEN CAME . . . . '81
WALTER BRADLEE SNOW . . '82
HARVEY STUART CHASE . . . '83
WILLIAM LEWIS PUFFER . . . '84
ISAAC WHITE LITCHFIELD . . '85
ARTHUR GRAHAM ROBBINS . . '86
EDWARD GALBRAITH THOMAS, '87
WILLIAM GAGE SNOW . . . '88
FRANK ARTHUR LAWS . . . '89
GEORGE L. GILMORE . . . . '90
HOWARD CARLETON FORBES . '91
WILLIAM ATKINSON JOHNSTON, '92
FREDERIC HAROLD FAY . . . '93
SAMUEL CATE PRESCOTT . . . '94
WILLIAM THOMAS HALL . . '95
EDWARD STACEY MANSFIELD . '96
JOHN ARTHUR COLLINS, JR. . '97
CHAS.-EDWARD AMORY WINSLOW, '98
MILES STANDISH SHERRILL . . '99
RICHARD WASTCOAT . . . . '00
EDWARD BROWNE BELCHER . . '01
CHARLES WETMORE KELLOGG, JR., '02
WALTER HOLBROOK ADAMS . '03
CURRIER LANG . . . . . '04
ROBERT H. W. LORD . . . '05
THOMAS LESLEY HINCKLEY . '06
KARL WILLIS RICHARDS . . '07
HARRY WEBB, ... '08
WALTER WELLINGTON KING . '09

MAXWELL ALANSON COE, President, Institute Committee

HARRY WALTER TYLER . . . '84
Secretary of the Faculty

EVERETT MORSS . . . . . '85
President of the Alumni Association

ARTHUR GRAHAM ROBBINS . . '86
Secretary of the Alumni Association

GUY LOWELL . . . . . '94
President of the Technology Club

LEONARD THEAKER BUSHNELL '05
Secretary, The Technology Club

JOHN T. CHENEY . . . . . '03
Secretary, North-western Association M.I.T.

HAROLD O. BOSWORTH . . . '02
Secretary, Rocky Mountain Technology Club

HENRY SOUTHER . . . . . '87
President, Technology Club of the Connecticut Valley

ALLSTON SARGENT . . . . '98
Secretary, Technology Club of New York

PAUL WEEKS . . . . . '02
Secretary, Technology Club of Philadelphia

RAYMOND H. DANFORTH . . '98
Secretary, Pittsburg Technology Association

HENRY A. BOYD . . . . . '79
Secretary, Technology Club of Buffalo

FREDERICK W. SWANTON . . '90
Secretary, Washington Society of the M.I.T.

RICHARD W. PROCTOR . . . '94
Secretary, The Cincinnati M.I.T. Club

JOHN A. COLLINS, JR. . . . '97
Secretary, The Technology Club of the Merrimack Valley

CHARLES H. STRATTON . . . '00
Secretary, Annapolis Society of M.I.T.

LATIMER W. BALLOU . . . '95
Secretary, The Technology Club of R. I.

CHARLES F. WING, JR. . . . '99
Secretary, The Technology Club of New Bedford

GEORGE W. BAKER . . . . '92
Sec., Technology Club of Hartford, Conn.

REDFIELD PROCTOR, Jr. . . . '02
Secretary, Vermont Technology Association

JACOB STONE, JR. . . . . '99
Secretary, The Technology Club of Minnesota

AZEL AMES, JR. . . . . '95
Sec., The Technology Club of Cleveland

Committee on Publication

JAMES PHINNEY MUNROE, '82
WALTER BRADLEE SNOW, '82
ARTHUR AMOS NOYES, '86
EDWARD GALBRAITH THOMAS, '87
WALTER HUMPHREYS, '97

Digitized by Google

The Technology Review

VOL. VIII. APRIL, 1906 No. 2.

TECHNOLOGY

The Spirit of Technology speaks:

I am young among my sisters, I am young, but I am fair.
I am young among my sisters, but in strength I do and dare.
I march at the head of my sturdy sons, an army thousands strong.
We do the right, we trust our might, and we sing aloud this song:

Chorus:

It is march, march, march
With level and rod and chain;
And it's march, march, march
On valley and hill and plain.
It is clang, clang, clang
At anvil and bench and forge;
And even the bosom of Mother Earth its treasure shall disgorge.

The Spirit again speaks:

I was little, I was weak, when he who long since passed away
Awoke me from enchanted sleep, and bade me look on day;
For at my birth my elder kin, with necromantic art,
Consigned me to oblivion, that they might play their part.
Full well they knew, if once I grew to womanhood, that grace
I had within and strength to win the Atalantine race.
But he came from the virgin land, and kissed me on the brow,
And took me by the hand, and, "Daughter, rise," he said, "for now

Digitized by Google

The time arrives when thou and I must join us hand in hand.
Our souls must wed, and procreate a bold and hardy band
To journey with the rising sun and drive the mists away
Which Pedantry for ages long has cast upon the day.
The ghosts of mediæval learning's vain and flitting crew
Must vanish, yielding place to men who make and act and do."
So I arose, and bound my feet with sandals, and my hair
I gathered in a golden crown, with arms and shoulders bare.
And he and I in unison, in beauty debonair,
Stepped out to meet the world;—
Alas! his journey soon was done.
Immortal I, but mortal he. The good and faithful one
Was gathered to his fathers, and another took his place,
Of manly mould, of energy, of fighting patriotic race;
A man to win the hearts of men, a man to love and trust,
Who gat me children. He in turn was gathered unto dust.
And other faithful helpmeets came, but I have sturdy grown;
Attended by my thousand sons, I now can walk alone;
In full, perfected womanhood, immortal, bold, and free,
I stand erect. The world's elect are not a match for me.
I am young among my sisters, I am young, but I am fair.
I am young among my sisters, but in strength I do and dare.
I march at the head of my sturdy sons, an army thousands strong.
We do the right, we trust our might, and we sing aloud this song:

Chorus:

It is march, march, march
With level and rod and chain;
And it's march, march, march
Over valley and hill and plain.
We span the chasm, we bridge the stream,
And we fill the earth with the hiss of steam.

It is search, search, search
In the heavens and in the deep;

Digitized by Google

And it's search, search, search
In the mine and the rubbish heap.
We delve for the metal that brings man ease,
And we conquer the filth that breeds disease.

It is clang, clang, clang
Of iron and steel on steel;
And it's clang, clang, clang
For cog and rivet and wheel.
Till bolt on bolt, and thole on thole,
The engine grows to a wondrous whole.

It is work, work, work
With hand and eye and brain;
And it's work, work, work
With cheerful might and main.
It is clang, clang, clang;
Each man in his chosen place
Beats out on the anvil of human toil the good of the human race.

L. Magruder Passano.

Digitized by Google

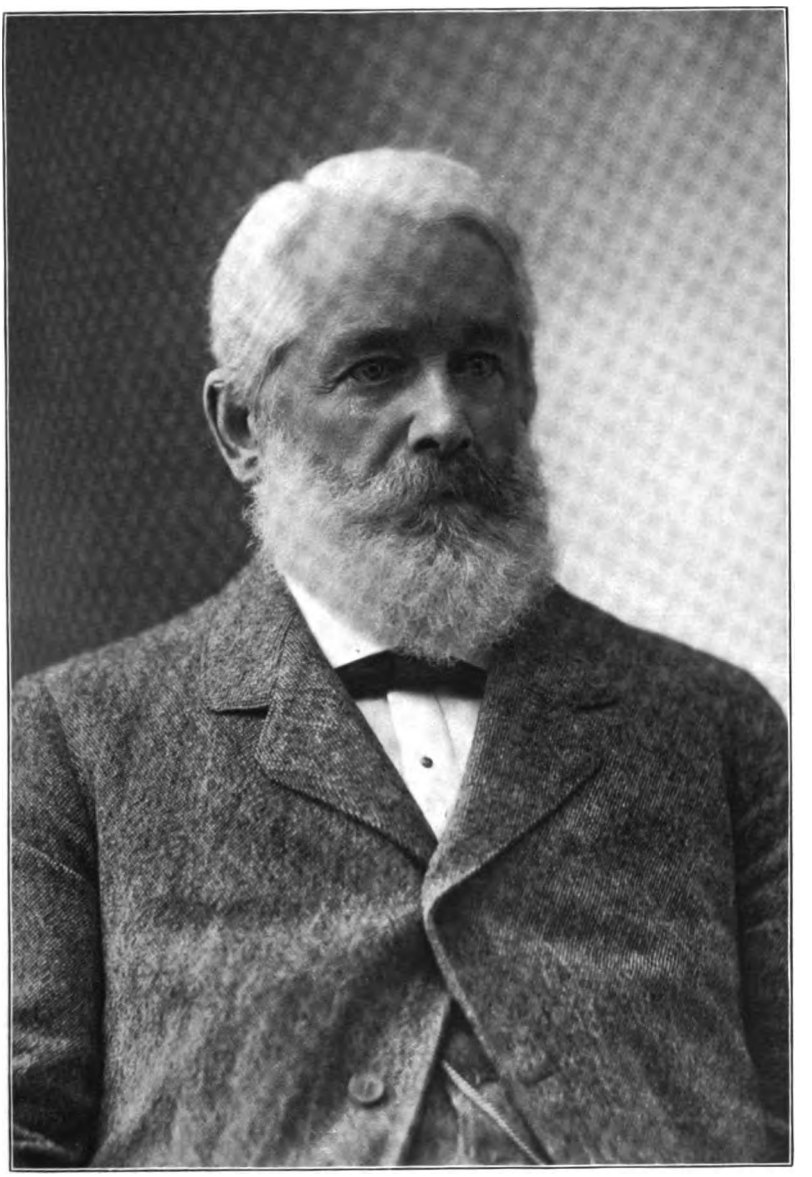
EDWARD ATKINSON.

1827–1905.

In the death of Edward Atkinson, which occurred on Dec. 11, 1905, in the seventy-ninth year of his age, the Massachusetts Institute of Technology has lost not only one of its founders, but one of its firmest friends. While Mr. Atkinson has not been directly connected with Tech for many years, yet he has always taken the liveliest interest in its affairs, and has given its students freely both advice and financial assistance. He had such a firm belief in the excellent work done by the Institute that he had about him a large corps of its graduates. In former years his face was a familiar one in and about the Rogers Building, but of late years he had been seen but little there. He took an active interest in the recent discussion as regards the future of Tech, and, while he was a firm believer and friend of both the Institute and Harvard, yet he believed it best for Tech to stand in the future as it had in the past,—squarely on its own feet; and he wrote several very able articles advocating its independence.

Mr. Atkinson was of an old New England family, and was educated in the public schools. He was not a graduate of a college or other higher school of education, but yet was one of the best educated of men. He was what might be termed a "self-educated" man, although he himself had a great dislike for that term. He had a keen mind and an excellent memory,—two qualities which are necessary for the making of a successful man. He kept closely in touch with all scientific questions, and, while he termed himself a "duffer in science," he was very far from being one.

Digitized by Google



EDWARD ATKINSON

1827—1905

Digitized by Google

Digitized by Google

His business education began at the age of fifteen, when be entered the employment of one of our Boston commission houses, where he began at the bottom of the ladder. By hard work he gradually pushed his way up, until he became treasurer and general manager of several of our large New England cotton mills. While treasurer of these mills, he was elected, in 1865, a director in the Boston Manufacturers Mutual Fire Insurance Company, and in 1878 became its president. In this position he did, perhaps, the greatest work of his life in developing the "Science of Prevention of Loss by Fire,"—a work which has saved many millions of dollars to the country and also many lives.

To assist him in this work, he called upon Professors Ordway, Lanza, Mrs. Richards, Dr. Gill, Dr. Norton, and other members of the Institute Faculty for advice and research work. In the more direct work of carrying out his plans, he brought about him such men as John R. Freeman, Waldo E. Buck, the writer, Mr. French, Mr. Kunhardt, and many others, graduates of Tech. With these men to assist him he entered upon the work of meeting and handling the many hazards surrounding our manufacturing operations with the great energy which he possessed. The result has been that the fire loss in the two thousand or more manufacturing establishments which were under his direction has been reduced over four-fifths, so that to-day it averages four cents per hundred dollars insured. This great reduction has been accomplished in the face of the fact that there are many more hazards attending manufacturing operations to-day than formerly, such as larger areas, increased speed of machinery, and the use of highly volatile oils. Mr. Atkinson's work in developing the science is so well known the world over that little more need be said on the subject. He was an authority on all matters of mill construction and protection.

Digitized by Google

In social and economic matters Mr. Atkinson took a very prominent part, not only in this country, but in Europe. He was a member of many scientific societies, and was always a prominent figure at their annual meetings. He was a prolific writer on many subjects, contributing frequently to the prominent newspapers and magazines of not only this country, but of Europe. His writings were devoted almost wholly to subjects which were intended to benefit humanity. He was always found on the side of the weak. Previous to the Civil War he was a prominent anti-slavery man. Since then he has been a great friend of the negro, and in his latter days every one knows he was found on the side of the Filipino. He was also a great friend of the proscribed race.

During his lifetime he was constantly endeavoring to promote methods which would be for the direct benefit of the world. The Aladdin Oven, which was one of his inventions, was primarily designed for the purpose of assisting the working-woman and student in taking care of themselves. While ridiculed by many, it is generally acknowledged that the oven has been of direct benefit in many cases. One of his latest undertakings with the same object in view was that of the development of mud and peat fuel for domestic and manufacturing purposes. At the time of the last coal strike, while walking in the woods and over the marshes near his summer home, his mind was attracted by the black peat or mud under his feet. He immediately saw the possibilities contained in it, and with his characteristic energy began to push the question of mud or peat fuel. In all his undertakings he had the public good fully in his mind, and in no case did he ever derive any financial return from his efforts.

By many Mr. Atkinson was considered to be egotistical. This may have been so. He at least was a man who, having perfect faith in himself and in his opinions, as all successful

Digitized by Google

men must have, did not hesitate to express himself forcibly. He was never discouraged, although the whole world might be against him. He was an optimist, in the true sense of the word. He had great faith in human nature, and believed that no wrong could endure for any length of time. Most men of independent views are inclined to think that the world is on its way to destruction because the majority of men do not always agree with them. On the contrary, Mr. Atkinson thoroughly believed that all men were well-intentioned and must come to his way of thinking sooner or later. He was usually found on the unpopular side, but this fact never discouraged him nor made him think less of the world. This trait was clearly shown in his writings on the Philippine question, with which so many people disagreed. At that time, with practically the whole country against him, he still went calmly on his way in the full faith that he was right and that time would settle the question according to his way of thinking.

Mr. Atkinson was in great demand at social, literary, and society meetings, not only for his ability to speak entertainingly, but for his own sake. He was the life of all such meetings. He also had a wonderful capacity for work, and was a firm believer in the necessity of work in all stages of life. He could not conceive of even a hereafter without work, as was shown by his last words as he lay dying in the corridor of his office building:—

"This is the end—what is there for me in the hereafter?—There must be work to do, as every one must work."

Joseph P. Gray, '77.

Digitized by Google

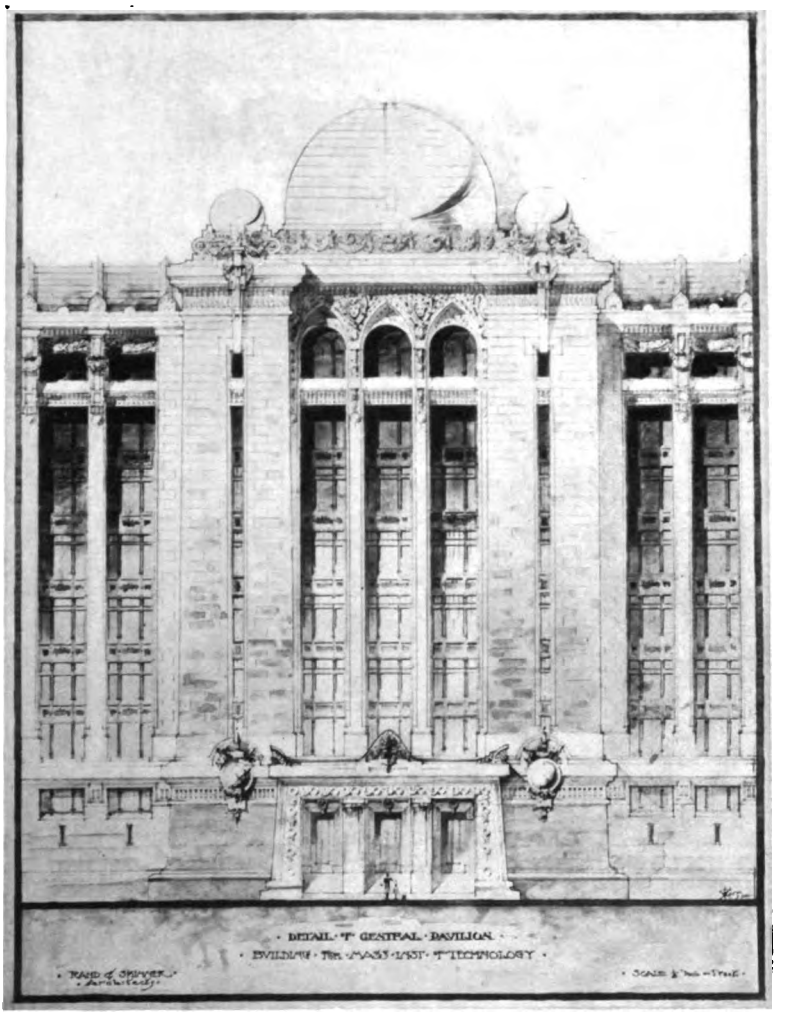
A SUGGESTED PLAN FOR A LARGER UTILIZATION OF THE PRESENT PROPERTY OF THE MASSACHUSETTS INSTITUTE OF TECHNOLOGY

Technology being a school of Applied Science, it is interesting to consider the problem of additional space from an engineering standpoint, and to give some study to the property already owned with a view to its more nearly complete utilization. The possibility and advantage of carrying the foundations of high buildings into the ground has been demonstrated; and of late the basement stories of office buildings and hotels have been carried to greater depths below than formerly their superstructures rose above the surface. Their architects have located halls, kitchens and storerooms, with complete refrigeration and filtration plants, laundries, electric power stations, etc., all in well-ventilated, uniformly lighted apartments four and five stories below the street level.

Human laws limit the height to which we may build upward, but only economic laws limit the height to which we may build downward; and, as we look into the future, may we not imagine glowing rows of laboratories with vaulted ceilings and walls of glazed tiles and glass, soft and uniform light permeating all corners, dissipating all shadow and all thought of subterranean caverns, and see Research finding therein new strength and inspiration? To realize that this is not a vision, one has only to visit the subways, the Times Building, and the Hotel Belmont in New York City, where they may be seen in fact.

Modern architectural practice in office building construction secures only an average of about 66 per cent. rentable area per floor of the gross area of the lot; for about 15 per cent. is taken up by walls and partitions, and 19 per cent. by corridors, toilets, elevators, etc. Technology has increased this per cent. of utilized area somewhat at the expense of public spaces and by leaving large areas

Digitized by Google



Digitized by Google

Digitized by Google

undivided. We shall find on examining the figures* that with increased subdivision of space a corresponding increase in the area needed for circulation and in the space occupied by walls becomes necessary, the net usable space lessens, and therefore an average of 75 per cent. of gross area would represent all that we could fairly hope to net in any large increase of our present accommodations. In the subsequent calculations this has been assumed as secured.

The building laws of Boston permit vaults to be built under sidewalks, parkings, and reserved areas to within eighteen inches of the inner edge of the street curb, and the courts have not prohibited us from building below the reservations on the Boylston Street lot, even if they have enjoined us from building upon more than one-third of its area, above the street line.

The area within the lot line and the 18-inch restriction is 96,200 sq. ft. Rogers and Walker Buildings cover 28,557 sq. ft., so a clear area of 67,643 sq. ft. is available for consideration without undermining either of these buildings. Imagine this area excavated to a depth of 60 ft. and a steel frame building of four stories constructed, there would be a gross area of 270,400 sq. ft. secured, netting 202,800 sq. ft. of new floor space, or about double the total utilized floor area of Rogers and Walker Buildings combined, which is 105,898 sq. ft. Remembering also that Rogers Building does not contain

* Table showing gross or lot areas and percentage (%) of same occupied by utilities and also net available renting space in Office buildings and for work in Institute buildings:—

Name of Building.	*Gross Area.*	*Walls and Partitions.*	*Corridors.*	*Net A.*
Cunard Building	2,940*	14.5	19.5	66
Beacon Building	8,612*	17	17.5	65.5
Paddock Building	6,644*	14.5	19.5	66
Pemberton Building	4,437*	13.7	19	68
Rogers Building	84,110†	23.7	10.8	65.4
Walker Building	70,085†	14.1	13.2	72.5
Engineering Building A . .	47,106†	11.2	7.5	80.8
Engineering Building B . . .	23,124†	10.7	19.6	69
Pierce Building	55,860†	10.8	8.8	80.4

* Gross area of single floor, including walls.

† Total gross area of all floors, including walls.

Digitized by Google

in any of its upper stories as much area as it covers on the ground, and that it does not rise to the legal height above the curb, and that the same statements apply, in a lesser degree, to the Walker Building, it is evident that increased space above the curb, still within legal limits, could be obtained by a removal of both buildings and the substitution of others in their places. If this were done,—with four stories below the street and six above,—the grand total of utilizable areas on the Boylston Street lot would be not far from 539,135 sq. ft., or five times the present areas.

Calculations on similar lines show that, if the Trinity Place block were developed, after reserving a lot 100 ft. x 100 ft. for a Walker Memorial Gymnasium, and leaving Engineering Buildings A and B, and Pierce Building as they are, a total of 471,390 sq. ft. of new floor area could be obtained in a building erected around the block and containing a large central court. This would bring the total in this block to 570,251 sq. ft., again an increase to five times the present areas.

As a summary may be more convincing, we repeat:—

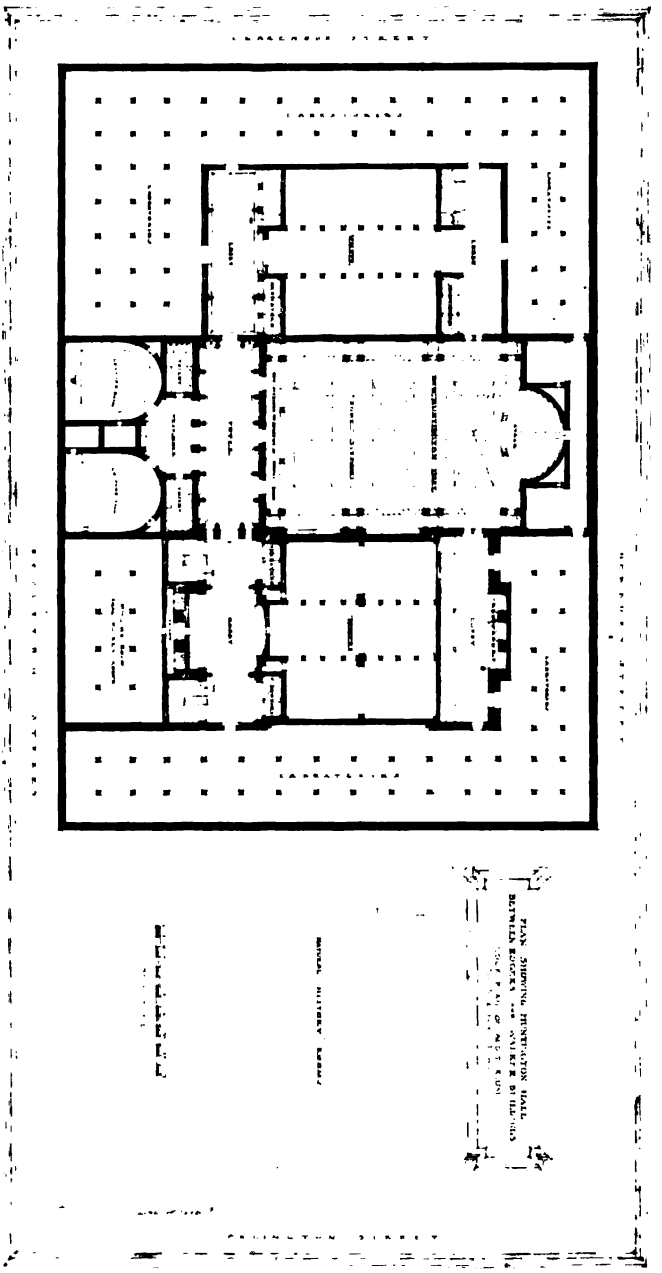
Rogers and Walker Buildings now net	105,898 sq. ft.
Engineering Building "A," Engineering Building "B," and Pierce Building now net	98,861 " "
Augustus Lowell Laboratory now nets	35,000 " "
Engineering Building, "C" now nets	19,000 " "
Boiler-room, carpenter shop, etc., now net	5,000 " "
A total of	263,759 sq. ft.

By rebuilding as outlined, the total areas would be:—

On Boylston Street	539,135 sq. ft.
On Trinity Place	570,250 " "
A total of	1,109,385 sq. ft.

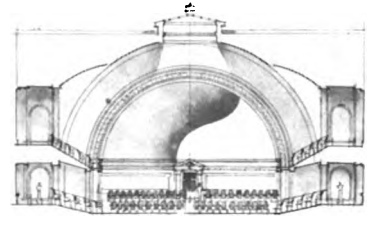
Something more than four times the present total areas and an increase of 845,626 sq. ft., or 3.2 times the present areas in all the existing buildings.

Digitized by Google

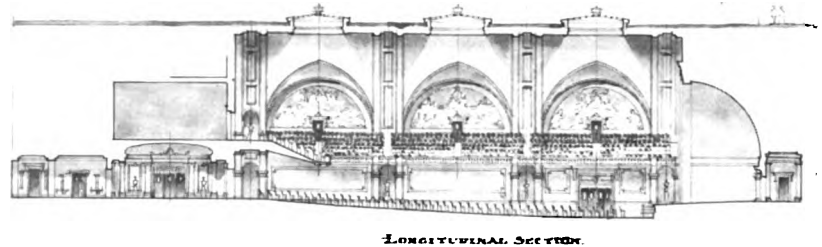


SECTIONS SHOWING HUNTINGTON HALL
BETWEEN ROGERS AND WALKER BUILDINGS.

SCALE 1/8 INCH = 1 FOOT



TRANSVERSE SECTION



LONGITUDINAL SECTION.

Digitized by Google

The preceding shows the ultimate limits of floor space which present-day engineering practice place within our reach without the purchase of additional land, and without contravening either municipal or economic laws, and suggests the use that large mercantile houses would make of our property if they were fortunate enough to own it. The methods by which these deep basements can be built are very fully described by Mr. John M. Ewen in a paper on "Foundations in Chicago," read before the Western Society of Engineers, and published in the December, 1905, issue of their *Journal*, Vol. X., No. 6. Mr. Ewen's paper also tells how greedily the business houses have availed themselves of the extra floor spaces made possible by the new methods, and should remove all doubts from our minds of the entire practicability of the scheme proposed.

The remaining problem—the question of "advisability"—is still before us. Some will object that underground laboratories would be unsanitary, that the absence of sunlight and fresh air would create a prejudice against us, and keep many away. But have such objectors seen present conditions? and do they appreciate how little daylight and direct outside air can be found in any large shop of more than two stories in height? Yet is there not in such shops greater uniformity in ventilation and in temperature than formerly obtained in small isolated buildings? Moreover, in all modern theatres and lecture halls daylight is wholly excluded, so that the lighting may be under the control of the management; yet, from the point of view of sanitation, these are more nearly perfect than ever before.

As a first step in the direction suggested, sketches are presented for a new Huntington Hall to be built between Rogers and Walker Buildings below the present street level. Approaches to this hall would be managed through slight alterations in Rogers and Walker Buildings, and also by sunken courts and stairways in the restricted park area. The removal of the hall from Rogers Building would release a large space which could be subdivided as seemed most desirable. A study of the entrance pavilion which Rogers Building might show on Boylston Street, if rebuilt on lines suggested

Digitized by Google

by the above considerations, is also presented, and further studies along these lines are being prepared.

Let us build a new home, expressive of unconquerable spirit, and let us make it a concrete example to the world of true knowledge rightly applied, and, instead of seeking new land to build upon, let us develop with our engineers and architects that which is already ours.

THEODORE H. SKINNER, '92.

Digitized by Google

THE FEDERAL POLYTECHNIC AT ZÜRICH FROM AN ADMINISTRATIVE STANDPOINT

The following notes are based on the official publications of the Polytechnic, supplemented by personal observation and conference with members of its Faculty. The writer is much indebted to their courtesy, and particularly to the patience with which they received and answered numerous questions. No attempt was made to gain any acquaintance with equipment or the general methods and subject-matter of instruction, the object being to acquire a correct general understanding of organization and administrative methods, and of relations with the local university, and some notion of points of resemblance to or difference from American technological schools.

ORGANIZATION AND ADMINISTRATION

The Federal Polytechnic is designed to serve the needs of all Switzerland for technological education. The Federal Council (*Bundesrat*) is accordingly the ultimate authority, electing the School Council and its President and Vice-President. Its jurisdiction includes also:—

electing (or removing) professors and teachers and fixing their salaries,
granting leaves of absence and retirement allowances,
presenting the budget of the school to the Federal Legislature,
determining the acceptance of gifts and bequests.

These (and certain other) functions are exercised in general at the instance of the School Council, with the intervention of the head of the Department of the Interior, who has a voice in all meetings of the School Council.

The School Council (*Schulrat*) is the active governing body, and its President is the executive head of the institution. It has the initiative in matters above mentioned as determined by the Federal Council; it elects the Director and his substitute, and other ad-

Digitized by Google

ministrative officers, except heads of departments, whom it has the right to confirm. (Its former right to elect these has been yielded to the professors.) It fixes salaries within the limits of budget set by the Federal Council, grants leaves of absence on occasion, appoints or removes teachers (*Privat Docenten*), apportions aid to students, determines laboratory and other fees, exercises oversight over the collections, reports annually to the Federal Council.

Besides these functions it has also the following powers and duties, although its exercise of them is, to a considerable extent, merely confirmatory:—

the approval of the semester programmes;
the determination of the school calendar and of the hours of exercises;
action on the more serious cases of discipline, either on appeal or in original jurisdiction;
the approval of the outlines of particular courses presented by the departments;
the decision as to diplomas and prizes (the Polytechnic has not yet the right to give degrees, but expects to receive it soon);
the decision as to admission of students;
any other needful functions not specially prescribed.

In the discharge of these functions it is obliged to secure the advice of the Faculty (*Gesamtkonferenz*) or of the Department (*Specialkonferenz*) on matters of importance. It—or its President—may enter into direct relations with any department or teacher.

The President (*Präsident*) must reside at Zürich. The other members are likely to live in different cantons. The President presents written recommendations, but any other member may also present business by motion. The President supervises the progress of the institution and its work, and is responsible for the carrying out of the decisions of the Federal Council and the School Council. In the intervals of sessions of the latter the President may deal with

applications for admission,
urgent cases of discipline,
urgent cases of leave of absence and substitution,
applications for remission of fees.

Digitized by Google

The Director (*Direktor*) and his substitute are elected by the School Council on the (double) nomination of the Faculty for a term of two years, with eligibility for not more than six consecutive years. He attends sessions of the School Council, except as otherwise ordered, and his principal functions are:—

to carry out decisions of the Faculty;
to exercise general oversight, acting as a co-ordinating and reporting agent between the School Council, the Faculty, and the Departments;
to present to the School Council the programmes based on data furnished by the Departments;
to co-operate with the President in deciding on questions of admission;
to keep records and lists;
to notify students and parents of action;
to arrange diploma examinations;
to deal with applications for change of department or leave of absence, with simple cases of discipline.

The Heads of Departments (*Vorstände*) are elected for two-year terms, with eligibility for not more than six consecutive years. Their duties include:—

execution of departmental decisions,
supervision of instruction and of students as to work and conduct,
participation in questions of admission,
decision as to substitution of studies or change of department.

The Faculty (*Gesamtkonferenz*) consists of all professors and teachers, the professors alone constituting a special division for nominating the Director and Vice-Director, etc. The Director presides, and must call at least one session a year. It is the duty of the Faculty to watch over the general development of the institution, and, in particular, to strive to keep all branches of its work in the closest and most vital relations with the chief aim of a practical and liberal education. The Faculty:—

appoints its Secretary and Committees;
discusses propositions of the School Council, the Director, the Departmental Conferences, and of its own members;
deals with cases of discipline of a general character.

Digitized by Google

The Departmental Conferences (*Abteilungskonferenzen*) include for each of the eight Departments (see page 178) all officers of instruction, only the professors, however, having unrestricted right to vote.

The corresponding Departmental Conferences choose their own heads, as above stated, subject to confirmation by the School Council. Their functions include:

the collection of quarterly reports of standing,
the yearly promotion of students,
simple cases of discipline,
recommendations to the School Council as to curriculum,
subject-matter of courses,
the award of diplomas and prizes,
recommendations in regard to more serious cases of discipline.

The Conference of Heads of Departments may be convened by the President or the Director, or on request of any three members. It is charged with the duty of insuring the harmonious and well co-ordinated execution of the regulations and conclusions of the authorities (Federal Council and School Council) in all Departments. It may discuss, in a preliminary way, matters falling within the province of the other Conferences (Faculty or Departmental) without, however, impairing their authority.

REMARKS ON ORGANIZATION

The test of any organization lies solely in its practical efficiency during a sufficiently long period, and such efficiency must depend on the adaptation of the organization to local conditions, the flexibility with which it meets new conditions, and the wisdom and good will with which it is administered. On these fundamental matters a brief visit affords no basis for judgment. Subject to this important reservation, the writer's impressions of the organization in the abstract were somewhat as follows:—

An element of fundamental and essential complexity is the mixed racial composition of the Swiss Republic. German elements preponderate, but French and Italian must always be reckoned with; and this necessarily implies more than the obvious linguistic difficulties. Again, any *federal* institution must be influenced by mere

Digitized by Google

considerations of locality; for example, in the choice of members of the federal School Council.

The functions of the Federal Council seem, from an American standpoint, to trench somewhat on the proper authority of a special board of trustees, as the School Council, selected for educational administration. The President and Trustees of an American State University would, for example, present to the legislature not a budget, but only a request for a general appropriation, and in particular cases for new buildings. The difference is, however, more apparent than real, the Federal Council actually leaving the authority substantially to the School Council,—a safeguard of which the value may well be different in different countries.

The keystone of the whole organization is evidently the School Council, controlling the conduct of the school on the one hand and connecting it with the body politic on the other. Of the seven members of the School Council for 1904–05 the President and Vice-President and one other live in Zürich, one in Lucerne, one in Berne, one in Lausanne, one in Aarau. This dispersion of the members naturally militates against frequent meetings or intimate knowledge of the school on the part of its members.

It would therefore appear, as in the case of the Federal Council, that the successful discharge of many of the functions of the School Council must depend on the extent to which it practically delegates them to its President or to other agencies responsible to it. In other words, the nominal powers of each Council tend to be exercised by a subordinate body or bodies. Such conditions are not, of course, unfamiliar elsewhere. If it were a question of the delimitation of powers actually and fully exercised, it would seem that the School Council might concern itself less with the details of educational and disciplinary routine than a literal interpretation of the regulations would imply.

The President's duties and powers appear to correspond somewhat closely with those of the corresponding officer in America. On the other hand, the most striking distinction from American usage seems to be the relative insignificance of the *Gesamtkonferenz*, the nearest analogue of our Faculty. In Zurich the several Depart-

Digitized by Google

ments appear to have much larger initiative and autonomy than would generally be the case in America. This corresponds with the fact that the students enter with more extensive attainments, and that their work at the Polytechnic is, therefore, more specialized by Departments from the beginning. It has the advantage of simplicity and directness, each Department dealing merely with its own students. From an American standpoint these advantages might seem to be somewhat dearly purchased at the apparent cost of the closer co-ordination and healthful interaction gained by leaving similar initiative to the Departments, but reserving the actual decision—for example, in such matters as recommendation for degrees, change of curriculum, etc.—to the Faculty as a whole. In America, however, the common degree (S.B.) in all departments, the identical duration (four years) of all courses leading to it, and the generally greater emphasis on this uniformity have a bearing on the matter. In Zürich there is a logical acceptance of the principle of nonconformity among Departments, some of them requiring only four or five semesters against the seven or eight of others. So far as the writer learned, there was general satisfaction with the existing degree of detachment of Departments, and no disposition to desire increased co-ordination or centralization.

Another conspicuous contrast with American conditions is found in the election for limited periods of the Director and the Heads of Departments. In comparison with the system of appointment for indefinite terms this seems more democratic, and the resulting identification of administrative with teaching functions, as well as the distribution of the former among a larger number of professors, have obvious advantages. How far these may be offset by the loss of continuity the writer could not judge. The provision permitting re-election up to a total period of six years was said to be generally exercised. The plan would appear to be in line with the non-centralization referred to in connection with the separateness of departments, and may have some tendency to increase the relative authority of those administrative officers having unlimited tenure,—the President and Secretary of the School Council, on the one hand, the staff of the Director, on the other.

Digitized by Google

RELATIONS WITH THE UNIVERSITY

The Polytechnic was founded by the Swiss Republic in 1855, and in connection with its location in Zürich the canton undertook to house it with the cantonal university already existing. Accordingly, the fine and extensive main building is still shared by the two institutions, certain collections are used by both, and certain professors give instruction in both. This connection—evidently neither close, nor organic, nor fundamental—tends to diminish as time passes, and would probably have been terminated long since but for the complications due to the original ownership of the entire main building by the canton. A separation such as is now contemplated must apparently mean the purchase of the remaining cantonal part of this building by the Confederation. It may be added that both institutions now have other buildings in which there is nowhere such association.

The Polytechnic not having at present the right to confer degrees, an arrangement exists by which the University confers its Ph.D. on candidates recommended by the Polytechnic. A thesis must, however, be presented in each case for approval by the Faculty of the University.

REQUIREMENTS FOR ADMISSION

As a state school, the Polytechnic adjusts its admission requirements to the possible performance of the secondary schools preparing its students. The delegates of the federal School Council—usually with one professor—attend the final examinations of the school, and acceptance of its certificates for admission is a matter of special agreement. The relations with these schools were said to be effective and mutually advantageous. The age requirement is eighteen, and the actual average is about nineteen.

On the presentation of a candidate's credentials the President decides, on recommendation of the Director, whether he shall be admitted subject to or without examination. Candidates who have failed at their certificate examinations in accredited schools are not admitted immediately to the Polytechnic examinations. Exceptionally mature age receives consideration as a claim to admission.

Digitized by Google

The examination is divided into a first part—general subjects—and a second—mathematics, physics, and chemistry.

The examining board (*Prüfungskommission*) consist of:—

the President and at least one member of the School Council,
the Director,
all the heads of Departments,
examiners selected from the instructing staff for two years each by the School Council.

The Heads of Departments have a vote only as to the admission of candidates for their respective Departments.

REQUIREMENTS IN GENERAL EDUCATION

1. The candidate is required to write a composition showing his ability to handle correctly some subject with which he is acquainted as to orthography, style, and logic, in German, French, Italian, or English.

2. He must show by oral examinations his practical command of the languages—German, and in certain cases French—in which obligatory instruction will be given.

3. He is examined orally in

History of Literature,—German, French, Italian, English, or Ancient.
Political History (General, and for native candidates Swiss History and Constitution).
Natural Sciences,—Fundamental facts of the animal, vegetable, and mineral kingdoms, including the structure and functions of the human body.

REQUIREMENTS IN PROFESSIONAL SUBJECTS

1. *Arithmetic and Algebra*, including, for example, logarithms, continued fractions, binomial theorem, simple exponential equations, exponential, logarithmic, and the simpler trigonometric series.

2. *Geometry*, plane and solid, including transversals, construction problems, determination of volumes and surfaces.
plane trigonometry and the elements of spherical.
analytic geometry, including the simplest equations of the conics and the elements of solid analytic geometry.

Digitized by Google

3. *Descriptive Geometry.*
4. *Physics.*
5. *Chemistry.*
6. *Drawing,* Freehand and Mechanical.

The great majority of the Swiss students come from the non-classical secondary schools.

CURRICULUM

The general scope of the curriculum is determined by the Federal Council, to which, for example, the introduction of a new department must be submitted by the School Council for approval. The law of July, 1899, designates the following departments:—

I. Architecture (*Hochbau, Architekten Schule*).
II. Civil Engineering (*Strassen,-Eisenbahn,-Wasser-, und Brückenbau, sowie Vermessungswesen; Ingenieur-Schule*).
III. Mechanical Engineering (*Industrielle Mechanik; mechanisch-technische Schule*).
IV. Technical Chemistry (*Industrielle Chemie; chemisch-technische Schule*).
   a. Technical Section.
   b. Pharmaceutical Section.
V. Agriculture and Forestry (*Land- und Forstwirtschaft*).
   Forestry.
   Agriculture.
   Rural Engineering (*Kultur Ingenieur-Schule*).
VI. Department for Teachers of Science (*Bildung von Fachlehrern in mathematischer und naturwissenschaftlicher Richtung*).
   a. Mathematical-Physical Section.
   b. Natural Science Section.
VII. General Department (*Allgemeine philosophische und staatswirtschaftliche Abteilung: Freifächer*).
VIII. Military Department (*Militärwissenschaftliche Abteilung*).

Subjects not required in any of the first six—the professional departments—are grouped in the seventh.

It is required that in all Departments instruction shall be given with constant regard to the special needs of Switzerland.

Digitized by Google

The prescribed vacation periods amount to thirteen weeks, eight in August and September, two at Christmas, three in the spring.

The number of semesters required in different courses is as follows:

> Architecture, Civil and Mechanical Engineering, require seven semesters and an eighth for a thesis; Technical Chemistry, seven; Pharmaceutical Chemistry, four; Forestry, six; Agriculture, five and a sixth for a thesis; Rural Engineering five; Mathematical and Physical Science eight; Natural Science, six or eight.

An inspection of the programmes show that the Polytechnic concerns itself with the professional, and not with the general education of its students. This statement may be qualified, however, by the remark that a great variety of general subjects are offered as electives, and that students are required to take one or more of these in later years. Moreover, the previous general education represented by the entrance requirements is considerably more extensive than is the case in the United States. Nevertheless, it would seem at least possible that students entering the Polytechnic at about nineteen might advantageously be subjected to some further prescription in general studies. Such subjects as mathematics, descriptive geometry, mechanics, are naturally given to students of different departments together. On the other hand, the importance of division and differentiation of the instruction in physics was emphasized. Students in architecture and chemistry have an abridged course in mathematics.

In the first semester of the two engineering courses differential calculus is a common subject, with 4 hours per week of lecture, 3 of section work (*Repetitorium*, 1; *Uebung*, 2). At the same time analytic geometry has 4 hours per week of lecture and 1 of section work, descriptive geometry 4 hours of lecture and 5 of exercise. In the second semester integral calculus occupies 7 hours per week, mechanics 9; in the third, differential equations 5, mechanics 7, physics 5; in the fourth, physics 5. Business law appears in the later semesters of all programmes, political economy in several.

The course in Rural Engineering (5 semesters), a subdivision of that in Agriculture and Forestry, differs very little in the first semester from the course in Civil Engineering. In the second semester it

Digitized by Google

omits descriptive geometry and mechanics, and includes physics, surveying, roads, and canals. In the third it omits differential equations, mechanics, graphical statics, and theory of machines, and includes surveying roads and canals, meteorology, etc., the two thus ceasing to have any considerable resemblance.

The two courses for Teachers of Science, one in mathematical and physical science, the other in natural science, are not definitely laid out, but each student may work out his own programme in consultation with the head of his course. Seminar work in mathematics and physics is offered in the latter half of the four-year course. In the first year the programme of the mathematical physical course corresponds rather closely with the engineering courses. The course in natural sciences includes a large proportion of chemistry, but more mathematics than the course in technical chemistry, as well as other branches of natural and physical science.

In all the programmes examined the total number of hours per week seemed large, this being explained in part by the length of the day,—7 to 12 and 2 to 7 in the summer, 8 to 12 and 2 to 7 in the winter. The extreme hours are naturally used relatively little, but teachers and students must obviously live near at hand. There is marked concentration of time in principal subjects, and this is further notable in the time-table, where time is used in large blocks, even lectures often occupying two consecutive hours; *i.e.*, ninety minutes.

The number of subjects per semester in the four principal courses, as shown in the following table, ranged from five to nine in the first three semesters, from six to fourteen in the last four. The average is six in the former period, ten in the latter. The assignment of time for exercises varies from twenty-nine hours in the first semester of Mechanical Engineering to not less than sixty in the fifth semester of Technical Chemistry.

	Number of Subjects by Semesters.							*Number of Hours per Week by Semesters.*						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Architecture	8	7	9	10	8	10	7	41	38	46	51	39	48	34
Civil Engineering	6	6	6	6	9	9	14	33	38	34	40	43	42	40
Mechanical Engineering . .	5	5	6	8	9	11	14	29	31	36	39	41	44	46
Technical Chemistry . . .	5	5	8	6	13	12	7	42	39	42	32	60	54	39

Digitized by Google

Courses of but one or two hours per week are common only among the non-technical subjects.

The use of lectures and the dependence on the students' own notes seemed to the writer to be carried—as elsewhere in Europe—beyond the point of best economy; but observations on this point were limited. Text-books and printed notes have their inevitable defects, but the working out of satisfactory notes by the student consumes much time, and its value may be easily overrated.

Research seems to be highly esteemed and effectively practised in the various departments.

TEACHERS

The grades of the instructing staff are

Professor,
Associate (*Hülfslehrer*),
Privat Docent (usually confined to elective subjects),
Assistant.

Teachers are required to give announced courses for three or more hearers, or even for one in the case of required subjects. Each must present the titles of his required courses to the Director's office, from which the collected material is referred to the heads of Departments for the approval of the departmental conferences. A teacher must report to the Director any detention from an exercise, and, if detained more than three days, must apply to the School Council for leave of absence. A teacher appointed for life—which appears, not to be frequently the case—who becomes disabled by age or illness may be retired by the Federal Council at the instance of the School Council, receiving a proportion (not fixed) of his salary. Removal requires similar procedure.

Directors and Heads of Departments are required to render an exact account of the finances and condition of their collections and equipment annually.

For the first semester of 1904–05 the total number of subjects announced is 405, counting recitations (*Repetitorien*) separately, including 58 by 31 *Privat Docenten*. The number of professors is 78, of Assistants 62 (including 4 places not filled).

Digitized by Google

The writer found keen interest on the part of the professors in the sabbatical year plan which he was supposed to exemplify, but was obliged to confess that only the strongest American institutions had yet been able to establish it.

STUDENTS

Students may be Regular Students or Auditors (*Zuhörer*), something between our special students and "listeners." The former are required to follow one of the more or less definitely prescribed programmes, except as permission for substitution of subjects may be approved for special reasons by the heads of their Departments. A considerable amount of election is allowed after the first two years. Every regular student must take at least one of the elective subjects in each semester. The tuition fee is 150 francs, besides small fees for the library, the hospital, and accident insurance. Laboratory fees are also additional.

Auditors may attend the elective courses subject to the age requirement and to presenting a certificate of character. Admission to professional subjects, however, requires examination or equivalent certificates, except in the case of men of mature age engaged in technical pursuits. Poor and able students may receive pecuniary aid, in addition to the remission of tuition. In disciplinary matters students are subject to general police regulations, and may be specially dealt with by the officers of the Polytechnic for:

neglect of studies,
disrespect and disobedience towards the school authorities and teachers,
disturbances and duels.

Penalties include:

reprimands by the Head of the Department, the Director, the President, or the School Council,
probation,
cancellation of registration,
dismissal. The last is determined by the School Council, and

Digitized by Google

is posted. It is the usual punishment for participation in a duel.

The by-laws of student societies and list of members are subject to inspection.

A student's promotion at the end of the year is determined by the departmental conferences on the basis of his work for the year. Two successive failures result in dismissal.

The diploma is an earned distinction. The School Council directs the oral examination, which is public, and is divided into two parts, of which the first is taken at the beginning of the fifth semester (in the Departments which have been above discussed). The examining committee consists of the Head of the Department and the examiners. A rank is given in each examination subject, and a definite weight is applied in each. Excellent previous work receives consideration. Success with the preliminary examination is required for admission to the final, and the results of both are considered in the award of diplomas. The examining committee reports for both to the School Council, including details and possible expressions of dissent. In particular cases, diplomas are "with distinction." Either examination may be repeated after a year's interval.

A thesis (*Diplomarbeit*) is an essential accompaniment of the final examination. In the department of architecture there are 5 preliminary examination subjects, 7 final, and the thesis is equivalent in weight to 7 examinations. In civil engineering there are 6 preliminary subjects, of which 4 have double weight, 7 final. The thesis has weight, 3 or 4. In mechanical engineering there are 6 preliminary subjects, of which 3 have double weight, 6 final, including 4 double, the thesis counting as 3, etc. About 80 per cent. of the regular students apply for the preliminary examinations, about three-fourths of these passing, and about one-half receiving diplomas.

A professor having some acquaintance with American institutions expressed the opinion that these directed their work and attention relatively more to the weaker students, and, in general, occupied themselves more with the personal welfare of students.

Digitized by Google

STATISTICS FOR 1903–04

REGULAR STUDENTS

	Swiss.	*Foreign.*	*Total.*
Architecture	53	8	61
Civil Engineering	213	70	283
Mechanical Engineering	271	251	522
Chemistry:			
(*a*) Technical	136	101	237
(*b*) Pharmaceutical	3	1	4
Forestry	30		30
Agriculture	43	8	51
Rural Engineering	17	5	22
Teachers:			
Mathematical-Physical	19	5	24
Natural Science	22	7	29
	807	456	1,263
Hearers registered			657
			1,920

Of the foreign students, 113 came from Austro-Hungary, 59 from Russia, 56 from Italy, 40 from Germany, 33 from Holland, 28 from France, 26 from Roumania, 22 from Great Britain, 14 from America (North and South), etc. It is an eloquent testimony to the wise liberality of the Swiss Republic—neither great nor wealthy in comparison with many of these countries—that it furnishes so admirable an education to all comers at a nominal cost, with no thought of discrimination or direct return.

H. W. TYLER, '84.

Digitized by Google

THE TECHNOLOGY FUND

ADDRESS OF MR. F. P. FISH

A well-attended meeting of Technology Fund workers was held at the Trade Club, Boston, on March 29, 1906. The meeting was addressed by Mr. Everett Morss, Mr. Frederick P. Fish, of the Corporation and Executive Committee, Mr. C. A. Stone, and others, and the progress of the campaign and the effect of the fund on the Institute were thoroughly discussed.

Mr. Fish spoke in part as follows:—

To deal with the fundamental purposes of your meeting, I could not do better than to repeat your President's speech. It covered the ground so well that nothing can advantageously be added to it. I should like to say a word, however, on the general subject of education, for I cannot help feeling that at the present time the underlying problems of education must be taken into account in connection with every phase of the work of the Massachusetts Institute of Technology. If we could be sure that we properly appreciated what the Institute must do, the lines upon which it should be developed, and the character of the training that it should seek to give, we should be in a far better position in our efforts to advance its material prosperity, and not only to state our case to the other graduates whom you are to approach, but also to deal with the subject adequately in the appeals which we must make to those on the outside who are in a position to give the assistance that is required, and who must be led to realize the importance of the Institute as an educational force in this country. We must not forget that the graduates alone cannot carry the whole burden. We must all put our shoulders to the work, and strive for help from the outside.

In the little that I have to say on the subject of education generally, I am not asking you to agree with me in any or all of my views. The most that I hope to do is to stimulate you to think for your-

Digitized by Google

selves, to find out for yourselves what is the truth, what is the proper view to be taken, the proper line upon which to work. It is only by suggestion and discussion that the right ideas can be developed. If we are all seeking for them, we shall find them. It is well that the seeking as well as the finding should be disseminated throughout the community; and I hope that the community of the Institute is this whole great country of ours.

There has not been a time in the last three thousand years when there was so much uncertainty in the minds of men as to theories of education as seems to me to be the case to-day. There was no doubt on the subject in the time of the old Persians. They thought it sufficient to teach their boys "to ride, to shoot, and to speak the truth,"—a pretty good education for those times. We all know something of the Greek ideals, which aimed at a perfection of mind and body which has not, I regret to say, always resulted from the schooling of more modern times. There was no doubt in the minds of the Greeks as to how their young men should be educated, and so down through the period of the schoolmen to the universities of modern times there was developed in each country and in each period a scheme of education that, as I look at it, seemed to the people of the day, in substance, the correct and final scheme. In this country the collegiate education of the period up to fifty years ago was accepted without much question as surely the best and most satisfactory that could be devised.

It has only been during the memory of men now living, since the great development of the physical sciences and since we have been brought face to face with the extraordinary industrial conditions which characterize our time,—so unlike anything that ever existed before,—that there has become a marked element of uncertainty in our ideas of education, leading to serious question as to whether a radical improvement in methods is not merely possible, but desirable and necessary. To-day it seems to me that we are, to a certain extent, groping,—dissatisfied with the systems of the past and of the present and hopeful for the future, but to a large extent uncertain as to the way in which our educational work should be so shaped that its results may be most effective.

Digitized by Google

We all know something of the ideas and methods that the Germans have developed in their universities and technical schools. We know of the conservatism of the English universities. When we note the high standard, as men, of those who are educated in Germany, and the equally high standard of those who come from the English universities, we may well hesitate to determine which country has adopted the sounder theories and the more effective methods. In this country we are wavering. There are many of us who believe in the old-fashioned academic schooling, with its range of studies somewhat remote from practical affairs, and there are others who advocate a more modern plan, which differs from the earlier in the emphasis given to engineering, technical, or scientific studies.

What is fundamentally new in the more modern schemes of education cannot be even adequately stated in the short time at my disposal; but, generally speaking, is not the difference between the old scheme of education and the new based upon two different views of the function of education, which, while not necessarily inconsistent with each other, result, in practice, in different lines of work?

In the old days it was the commonly and generally accepted idea that the purpose of an educational institution was to take a boy at the age when he was developing from youth to manhood, and to carry him along under proper discipline so as to make a sound man of him, giving him broad, underlying principles of thought and action that would fit him for the duties of life in any or all of the fields open to an educated man. The Persian thought that for his time and his environment a man who had been thoroughly trained "to ride, to shoot, and to speak the truth," and who had really profited by that training, had, as a result of this education, become as well able to deal with the comparatively simple problems of Persian life as could possibly be the case. Such was the thought of the Greeks and of the peoples of the Middle Ages and later, all of whom believed that they had found a system of education that would build up a man so as to enable him to be of the utmost value to himself and to the community of which he was a part. Not only useful men, but great men, were developed by all these systems of education;

Digitized by Google

and the validity and truth of the fundamental thought seemed to be established in every generation by the result of the schooling. The ideals of this older education were noble and honorable and wise, I believe, to the last degree. We have not lost those ideals, and we must never lose them. We men of to-day, in dealing with educational questions, must always first consider the type and kind of man that is turned out from an institution as the great test of its efficiency and of the soundness of its methods; but there has come into the world as an actual practical force the new thought that not only may education result in fitting a man generally for the world's work, but that as an incident to his education he may be trained in such a way that, when he has finished with his schooling, and has gone out to seek his fortune and to play his part in practical life, he shall have such an actual knowledge in certain special directions as to be directly useful in certain fields for which his training directly fitted him. It may almost be said that in the old days the higher education was *directly* of practical value only to a school-teacher or student or professor, who gave up his life to work analogous to that preliminary work which occupied his attention in the university. But, in so far as that education was sound, it was expected to train the student so that he might become an engineer, a professional man, or a business man, and be stronger in ability and character than would have been the case if he had not had the benefit of the standard education. The more modern thought, as it may be called, supplements this idea by adding to it the principle that his education may be such as to produce a man of just as sound intellect and character and of just as high standards and attainments, and with the same capacity for excellent all-around work in whatever lines he may find himself employed; while, at the same time, and as a result of the same education, he may be acquainted with definite and more practical affairs, so as to be immediately ready for work and immediately fitted for the actual performance of it, without so much of the supplementary training that was required in the older days. It seems to me that one of the difficulties that educators have to deal with, one that must never be overlooked by the Corporation of the Institute or its Faculty, one of the difficulties that you graduates of

Digitized by Google

the Institute have to consider and solve, is to determine exactly how much truth there is in this new thought, if it is new, and exactly the limitations involved in it. No scheme of education can be satisfactory that does not develop in the case of each man the best that is in him. None can be tolerated that does not produce men of character and attainments, able to grapple with the great, general questions that are sure to be met in life. Whether students can be educated along the practical lines which fit them for immediate service in the world, without undue sacrifice in the general results which are of such importance, and, if so, whether in a particular case, as, for example, in the case of the Massachusetts Institute of Technology, there is any error in the scheme or method which must be eliminated, in order that the results may be altogether satisfactory instead of only partially satisfactory, is one of the great questions which we all must consider.

It is my own personal belief that the work of the Institute of Technology can be so shaped as admirably to train men to become engineers and technical men, who are of immediate value in their special professions, without in any substantial degree interfering with that intellectual and moral development which is necessary to make them strong, able, and effective workers in the field at large. I believe that, when properly guided, men can grow in general character and strength, through the study of physical science and the practical applications of the principles of the laws of physical science, to substantially the same extent as if a larger portion of their education had been in what were once called the humanities. The soundly educated man of the old type may be somewhat different. He may look at things in a different way and from a different point of view; but, for all that we can foresee, the normal result of the newer form of education, when worked out on right lines, may be even a better, a more useful, and a more satisfactory type.

In my opinion the great problem for the Institute is to organize its work so that there will be no loss in the general fitness of the product that is not more than compensated for by the capacity for practical work attained by the years spent in the school. As I have

Digitized by Google

already stated, it seems to me that at this day we are facing such new problems in education that our undertaking is even now, to a certain extent, experimental. No one would venture to say that he knows it all; that he is in a position to define exactly the lines upon which the work of the Institute should be carried on, in order to accomplish the best and most satisfactory result. We must all deal with the question, and study it, each from his own point of view; for, while the subject is pre-eminently one for a specialist, there can be no true specialist in education who has not studied and learned the point of view of every intelligent portion of the community. We must all aid the specialists in coming to a sound conclusion.

And what a fascinating piece of work it is! If I could live my life over again, I would prefer nothing to the life of an educator, devoting my entire time to the study of these questions; for what career could be more interesting or of greater moment than one devoted to finding out how to train those who are to be the bone, the sinew and the blood of the great corporate body of the United States of America? We must do everything in our power to make the Institute of the greatest possible weight in the community. We must co-operate to see that it is developed upon absolutely sound and adequate lines. To this end, the first and most important thing is that the Corporation, the Faculty, and the graduates should pull absolutely together in determining, first, the fundamental principles and, next, the way in which those principles should be developed and applied. I do not mean, nor do I for one moment suggest, that now or at any other time we shall all agree on these fundamental propositions; for I am satisfied that a universal agreement on such points might mean stagnation, and that the truth can come only from the correlation of sincere and honest but necessarily divergent views. It may, and probably can, come only after some mistaken ideas have been adopted and some mistaken methods employed; but, if we all keep at it, there will ultimately be found exactly what is required to attain for the Institute the position among educational institutions which it must have,—namely, a position which is pre-eminent.

The suggestion of the usefulness of honest disagreement reminds

Digitized by Google

me of this matter which is now absolutely dead, the matter of the so-called "merger." After giving that subject the best thought of which I was capable, I was firmly convinced that it was of the greatest importance to the Institute that it establish the close relation with Harvard University which was contemplated in the memorandum with which you are all so familiar. I have never seen any reason to change my belief. I know that many of you differed absolutely with me in that view. I never for a moment had any feeling that those of you whose opinion did not coincide with mine were not actuated by a zeal and devotion to the Institute equal to mine. I never undertook to measure the intelligence of those who were on the other side as compared with my own. I was convinced as to what was for the interest of the Institute. Those who differed with me had convictions the other way that were equally strong. To make one last and final reference to this matter, which I think ought now to be forgotten, I am satisfied that this difference of opinion, taken by and large and in the long run, was a great thing for the Institute. As a result of it, more thought has been given by all of us to the needs of the Institute, to its record in the past, to its prospects in the future. We have been waked up to the necessity of correcting that which needs correction, of finding out the fundamentals, as well as the details, of how we must work to develop the Institute on such lines as to continue it, under changing conditions, as the great, important instrument for good that it has been, and must always be. I doubt if in any other way we should all have been brought into more complete and absolute harmony in our devotion to the school and in our determination to see that everything necessary is done for its advancement. For these reasons I am satisfied that the discussion which we have had and the differences that have arisen among us, in so far as they were a disadvantage, were disadvantageous only for the moment, and that they will prove to have been fruitful in advantage for all time.

Let me refer for a moment to your efforts to raise funds for the enlargement and development of the work of the Institute. Your work has been admirable and effective. It is altogether creditable to you, and the results are creditable to the graduates. Even if

Digitized by Google

zeal and loyalty are to be assumed, as in the case of all associated with the Institute, it is a great thing to have them stimulated once in a while by active effort. There is nothing sordid in money, except when the man is sordid or the purpose is sordid. When we are dealing with the question of an educational institution that has so much influence in shaping the lives and careers of individual men, and in shaping through them the future of the community and of our country, the question of money is not only one of the utmost importance, but is one with which we may well be proud to deal. No institution of learning can thrive unless it is properly supported; and, if it is doing its duty, the demands of every such institution are greater from year to year, not only because of its growth, but because the constantly higher standard of work which it must have requires a larger and larger expenditure. All of us know that there is hardly a department of the Institute that is not to-day greatly in need of money,—not for luxuries, not for mere conveniences, but as an absolutely necessity for sound and extended work. It is almost pathetic to sit in the Executive Committee and hear the letters from this professor or that, telling how he is hampered because he cannot have $50 or $100 for his laboratory or for more assistants or for some apparatus that is needed to make his work effective. It is painful to learn how, not only the work, but the very life of the men is contracted for the lack of necessary funds. Much should be done to improve the general environment and condition of the students; and the Institute should be placed in a position where the judgment and sympathy with which it should deal with this problem need not be hampered by lack of resources. Well as the Institute is doing,—and it is doing very well,—we all see that there is much which is important and far-reaching for good that could be done if we had adequate funds. We must have larger resources. The Institute must go on increasing in power and efficiency, or there is danger, at least, that it may go backwards. There are two ways of getting the money which we need. One is to contribute it ourselves, and the other is to get it from outside our ranks. You have done a magnificent work in getting together the number of subscriptions which you have succeeded in getting. I am abso-

Digitized by Google

lutely sure that you have now got the snowball so large that it will grow and grow, until the fund amounts not to $500,000, but to much more.

But the work you have done has been largely in the family. It may be bad policy to call upon outsiders at the present time. It seems to me clear, however, that every man associated with the Institute in any capacity, as student, member of the Faculty, member of the Corporation, or graduate, should remember that there are any number of men in this country ready to pour money into the coffers of the Institute, provided the right suggestion is made, at the proper psychological moment, to the man who has the money and who desires to invest it in the soundest possible way. There is money enough ready for the investment. There are men enough seeking to invest their surplus wealth in just such enterprises. They need only to be reached and satisfied as to the validity of the investment. They want instruction. They hesitate only because they fear they will make a mistake. If we all have it in mind that wherever we go or whomever we see, we should be constantly putting to ourselves the question, Is not this the opportunity to get the help which the Institute needs? sometime some of us will strike the right men, who will be glad to come forward with the large amounts needed in order to secure that development for the Institute which it must have.

One effect of the decision of the Supreme Court is that we must stay where we are for a long time to come. Our growth must be in the neighborhood of Berkeley, Clarendon, and Dartmouth Streets, where land is held at a high value. The number of dollars that ought to come to the Institute for land and buildings in the next twenty-five years is larger than I care to express. We need large sums for equipment and for an increase in the teaching force, not to speak of the question of adequate compensation for the teachers we now have and must have. All this money, I am sure, will come if the Institute shows itself worthy of the support of right-minded people. It will not be false to its history; but, to be true to its history, it must not for a moment stand still. Its standards must enlarge, and it must become each year stronger and more efficient.

Digitized by Google

Competition in educational institutions is as clear and definite an element, and to be taken into account as much, as competition in business; and, however the case may be in business, I am sure that in educational institutions competition is the life of the situation. Nothing can be more stimulating to an institution of high ideals than the prosperity of its competitors. No first-class man or first-class organization ever resents fair competition,—the competition of a foeman worthy of his steel. In its own field the Institute will have to measure itself for all time, not only against Cornell and the other older institutions, but against the State universities which are developing on sound lines all through the West, where everything that can be done by unlimited wealth and great enthusiasm and intelligence will be done to develop them into institutions of the highest class. We impose upon the Institute the duty of keeping to the front. It should be its ambition to stand in the United States as the great technical school of the first rank, and to be recognized by the State Universities of Kansas, Wisconsin, and California as the greatest of such schools.

As was the case when Themistocles was proved to be the only general fit to lead against the Persians at Salamis, we must shape our affairs so that, while each institution may loyally vote itself to be the first, they will all declare the Institute the second in the land.

If the Institute is to reach and maintain that position, it has much to do. It must not only hold its own, but it must forge ahead. It must by its constant development and continued growth in power and efficiency show itself worthy of the support of the community as a whole, as well as of those who are particularly interested in it. You gentlemen have already shown what you can do in a material way. You and your associates have, to a large extent, the responsibility for the future. If nothing will satisfy you except that the institution shall stand at the head of its class, there will it surely stand. You can and must be an inspiration to the Corporation and the Faculty, whose work will be enormously easier if they have your sympathy and active support, not merely encouraging them in the work they do, but spurring them on to constantly increasing efforts and higher ideals and higher achievements.

Digitized by Google

As to the money side, you hope to bring your efforts for this particular fund to a satisfactory conclusion this spring; but, when your Fund Committee dissolves, the obligation of the graduates, of the Corporation, of the Faculty, and of all the friends of the Institute to keep on, month by month and year by year, in the same spirit, to secure what the Institute needs, not to maintain its present position, but to grow and develop, will continue for all time; and, gentlemen, while the burden will be great, it will be one of the most delightful burdens that we can have on our shoulders. We shall be glad to carry it. We shall have moments of dissatisfaction and of discouragement, but we shall have periods of supreme pleasure, when things come our way faster than we have any right to expect and we see not only the material resources of the Institute, but its character and standards, advanced to our satisfaction. We must work for the two things, which are really one; and, as the Institute gains, and is recognized as the greatest school of its character in the country and in the world, it will be a never-ending source of pride to us that we have contributed by our thought and effort to its prosperity, and thereby to the advancement of our country and of the human race.

Digitized by Google

INSTITUTE GRADUATES AT GERMAN UNIVERSITIES

In July, 1904, the Philosophical Faculty of the University of Berlin adopted the following rules in regard to American students:—

1. The Faculty recognizes every baccalaureate degree (A.B., B.Sc., etc.) acquired at an American university as the equivalent of the German *testimonium maturitatis* [certificate of completion of the course of study at a German Gymnasium].

2. In order to have graduate work pursued at an American university credited by this Faculty, upon proper approval of the ministry, towards the three years of study prescribed by this University for the degree of Doctor of Philosophy, the candidate must have taken his graduate work at one of the institutions represented in the Association of American Universities. The candidate must, however, have been in residence at a German university for at least three semesters.

By this rule, which has also been adopted by many of the other important German universities, students who have pursued graduate work at the Institute or other scientific schools not connected with one of the fifteen universities belonging to the Association of American Universities are required to spend not less than three years, in order to obtain the degree of Doctor of Philosophy. Since experience has shown that our graduates, especially after they have devoted an extra year or two to graduate study or teaching at the Institute, are almost always able to complete the work required for the German degree in two years or less, this new regulation cuts off to a considerable extent Institute graduates from the advantages of German study which they have previously enjoyed, and it has already forced some of them who desired to study at German universities to go to those of other countries instead. It is felt by the Corporation and Faculty that this discrimination against men educated at scientific schools in this country is an unjust one, and that the

Digitized by Google

matter should therefore be brought forcibly to the attention of the proper German authorities. For this purpose a memorial is to be submitted to the Ministers of Education of the German States and to the Philosophical Faculties of the German Universities. It is believed that this is of so much interest as representing the claims of Institute graduates to the same recognition as is given to those of American universities that the REVIEW presents below the memorial substantially in the form in which it has been adopted by the Corporation and Faculty.

LETTER.

BOSTON, April 28, 1906.

TO THE PHILOSOPHICAL FACULTY OF THE UNIVERSITY OF BERLIN:

Dear Sirs,—The Corporation and Faculty of the Massachusetts Institute of Technology desire respectfully to submit to your honorable body information in regard to the character of the instruction and research pursued at this Institute and in regard to the preparation and fitness of its graduates to pursue advanced work at German universities, and to request that the graduates of the said Institute be received at German universities under the same conditions and be granted the same privileges with respect to promotion for the degree of Doctor of Philosophy as are accorded to students holding degrees from American universities belonging to the Association of American Universities.

In justification of these requests it will be shown by the information and documents herewith submitted that the degree of Bachelor of Science of the Institute represents the completion of an amount of fundamental and cultural study no less than that required for the degree of Bachelor of Arts at some of the colleges belonging to the Association of American Universities, and a training on the scientific side far more thorough than is ordinarily received by Bachelors of Arts at such universities. It will also be shown that the Institute maintains courses of advanced study and research, and that the quality of its work as indicated by the records and reputation of its students and graduates is not inferior to that of the best American universities; also that non-membership in the "Association of American Universities" establishes no presumption unfavorable to the thorough and advanced character of the work of the Institute.

For greater convenience in its consideration the information referred to

Digitized by Google

is presented in the form of a printed circular in the German language; and a number of copies of this circular are submitted herewith.

INFORMATION

With this circular are submitted certain publications of the Institute which will give information in regard to the character of its work. These include the latest Catalogue of the Institute, the President's Report for 1906, and circulars on Summer Reading, on Advanced Study and Research, and on the Research Laboratory of Physical Chemistry.

It will be seen by reference to page 99 of the Catalogue of the Institute that candidates for admission must pass examinations in history, English literature and composition, German, French, algebra, plane and solid geometry, and physics. Only students who have already attended other colleges are admitted without examination. The requirements for admission are in these subjects not less severe than those of the stronger American universities, and in mathematics the Institute tests are exceptionally thorough. Students entering the Institute have about the same average age * as those entering the universities, and they have had a substantially equivalent preparatory schooling.

By reference to pages 36–71 of the Catalogue it will be seen that each candidate for the degree pursues a four-year course of study in such a department of science or technology as he may select. The main studies of each Course are prescribed, but in the later years the student has the opportunity of choosing between several different lines of work. It will be seen that the first two years of each Course consist mainly of studies of a cultural (non-technical) or fundamental character, and that such studies are continued, though to a less extent, in the third year. Thus every candidate for the degree of the Institute pursues courses in English literature and composition, advanced German and French, American and European history, political economy, business law, general chemistry and physics, including laboratory work in these subjects, mathematics through the calculus, mechanical and free-hand drawing, and descriptive geometry. In addition each student must attend such one or two of the following courses as he may select:† English literature, advanced English composition, Spanish, advanced French or German, history of science, politics and

* The average age of students entering the Institute is 18.7 years.

† See page 72 of the Catalogue.

Digitized by Google

government, international law, economic history, or some special branch of economics; and he is required during the summer vacations to do extensive reading in literature, history, and general science.* These studies which every candidate for the degree of Bachelor of Science must pursue represent a considerably larger amount of work of a general educational character than is required for the corresponding degree at the scientific schools connected with the leading American universities.†

It is worthy of note that at such universities the number of students who now pursue mainly classical studies is a small percentage of the whole. Mention may also be made of the fact that at some of the leading American universities (for example, at Harvard, Columbia, and Johns Hopkins) the degree of Bachelor of Arts may now be taken in three years, while the courses for the Bachelor of Science degree at this Institute require a period of study of at least four years.

The scientific work required for the Institute's degree of Bachelor of Science in the Courses of Chemistry, Physics, and Electrochemistry, are shown on pages 51, 57, and 59 of the Catalogue. It will be seen that all the important branches of these related sciences are thoroughly treated in each Course, not only through lectures and recitations, but also by means of laboratory work of an exact quantitative kind in each subject. Every student is required to carry on in the second term of the fourth year an original investigation of some new scientific problem, and to describe the results of it in a "thesis" submitted to the Faculty. For the purpose of comparison with the work done in the same lines at American universities, the Institute's Course in Chemistry, which may be taken as a typical one, has been placed side by side in Appendix A with the corresponding courses given at the scientific schools of Harvard University, Cornell University, and Yale University. An examination of these schedules shows that the number and nature of the scientific and technical courses required for the degree at these three institutions are not far from the same,‡ but that, as stated above, this Institute requires a larger amount of cultural study.

* See the Summer Reading circular herewith enclosed.

† Thus the total number of hours devoted at the Institute to exercises in the above-named subjects (not including the Summer Reading) is 1,455; while the time required to be devoted to similar subjects in the course in chemistry at some other scientific schools is, according to their catalogues, as follows: at the Lawrence Scientific School of Harvard University, 1,185 hours; at the Sheffield Scientific School of Yale University, 840 hours; at the College of Arts and Sciences of Cornell University, 750 hours. (See Appendix A.)

‡ Except at the Sheffield Scientific School of Yale University, where the work for the degree is ordinarily completed in three years instead of four.

Digitized by Google

The Corporation and Faculty of the Institute are well aware that what is important in education is not so much the quantity of the work accomplished as its quality and the training acquired from it by the student. These are matters which can hardly be demonstrated by statistics. Yet attention may be called to the following facts bearing directly or indirectly upon the character of the instruction at this institution. The Institute maintains graduate courses leading to the degrees of Master of Science, Doctor of Philosophy, and Doctor of Engineering, as is done by the leading American universities. Research work is carried on in all its departments, and a special Research Laboratory of Physical Chemistry and one of Sanitary Science have been established for the purpose of promoting scientific investigations in these directions.* The members of its instructing staff publish each year a considerable number of original researches† in science and technology. Its graduates occupy some of the highest engineering, scientific, and professional positions in this country.‡ Of its present students thirteen per cent. have previously received the degree of Bachelor of Arts or of Science at some other institution, and in most cases at one of the colleges in the Association of American Universities. Finally, more than one-third of its fifteen hundred students come from States outside New England § or from foreign countries, showing that its reputation is not merely a local one.

That students of the Institute after receiving its degree of Bachelor of Science are in fact prepared to enter successfully upon more advanced study and research at German universities is perhaps shown most conclusively by the record of those Institute graduates who have studied in Germany. In Appendix C are presented statistics in regard to all such graduates who have taken the degree of Doctor of Philosophy at a European university. These show the main branches of science pursued, the usual period of study in Europe, the universities by which the degree has been granted, the ranks obtained (in so far as these were known to the compiler), and the character of the positions now occupied by most of the recipients of the degree. An examination of this appendix will show that with few exceptions Institute graduates have received the Ph.D. degree after a residence of only two years,

* See pages 84–92 of the Catalogue and the special circulars.

† See pages 94–103 of the President's Report for a list of publications made during the preceding year.

‡ See Appendix B.

§ That is, from distances exceeding 400 kilometres.

Digitized by Google

and generally with the rank of either *Summa cum laude* or *Magna cum laude.* It will be seen, moreover, that most of these men now occupy important professional positions.

Finally, it may not be superfluous to add that non-membership in the Association of American Universities establishes no presumption unfavorable to the Institute. The term university is applied in this country only to educational institutions of which a *college* giving the degree of Bachelor of *Arts* forms a part. The Institute does not give this degree, which as a rule represents an education on the humanistic rather than the scientific side; and it is therefore naturally not included in such an association. The Institute courses in scientific subjects are conducted, however, on a scholarly plane not inferior to that of the best American universities, and the exceptional earnestness and industry of its students and the efficiency of its graduates are recognized throughout the country.

In view of all these consideration the Corporation and Faculty of this Institute venture to express the hope that the highly esteemed privileges hitherto granted by many German universities to Institute graduates, of which privileges past experience seems to have shown them worthy, may not now be abridged by the adoption or continuance of regulations which make a discrimination between graduates from the leading colleges and those from the leading scientific schools of this country,—between the system of education based primarily upon humanistic and that based upon scientific studies.

Digitized by Google

Appendix A.

Typical Courses in Chemistry that would fulfil the Requirements for the Degree of Bachelor of Science at the Massachusetts Institute of Technology, of Bachelor of Science or Arts * at Harvard University, of Bachelor of Arts at Cornell University, and of Bachelor of Philosophy at Yale University.

Subjects.	*Hours of Required Class Work.*			
	M. I. T.	*Harvard.*	*Cornell.*	*Yale.*
Advanced Algebra	30	45	30†	30†
Plane Trigonometry	30	45	30†	30†
Analytic Geometry	45	45	75	60
Differential and Integral Calculus	90	90	75	30
Differential Equations	45	—	—	—
Advanced French	90	90	—	—
Advanced German	90	90	—	180
English Composition and Literature	135	120	—	90
European and American History	60	—	—	—
Political Economy	45	—	—	—
Other general studies	60	—	—	—
Descriptive Geometry and Drawing	225	210	135	90
Physics, Lectures and Recitations	180	120	120	120
Physical Laboratory	75	150	150	—
Inorganic Chemistry, Lectures and Laboratory	255	180	135	120
Fundamental & Cultural Subjects: Total	1,455	1,185	750	840
Mineralogy	60	150	70	135
Geology or Zoölogy	—	—	120	105
Mechanics of Engineering	—	—	150	—
Mechanical Laboratory	—	—	120	—
Thermodynamics	30	—	—	—
Military Science	90	—	90	15

* A considerably less amount of work than that shown in the table would fulfil the requirement for the degree of Bachelor of *Arts* at Harvard University.

† Required for entrance to the Scientific School.

Digitized by Google

Subjects.	Hours of Required Class Work. M. I. T.	Harvard.	Cornell.	Yale.
Advanced Inorganic Chemistry	30	—	30	120
Qualitative Analysis	165	300	200	285
Quantitative Analysis	615	450	290	445
Assaying	30	30	90	30
Special Analytical Methods	—	150	130	—
Water Analysis	30	—	140	—
Gas Analysis	20	150	90	15
Industrial Chemistry	90	90	—	—
Organic Chemistry Lectures	90	135	90	75
Organic Chemistry Laboratory	270	150	270	180
Theoretical Chemistry	75	60	90	45
Theoretical Chemistry Laboratory	90	150	90	—
Electrochemistry	30	45	45	—
Electrochemistry Laboratory	90	150	150	—
History of Chemistry	15	45	—	—
Other elective subjects	—	—	90	—
Research and Research Reports	300	400	300	—
All Subjects:	3,575	3,640	3,395	2,290

NOTE.—Owing to the complications introduced by elective studies and the divergence between stated hours of class-work and those practically required, this table probably does not represent an exact equivalent of the requirements of the different institutions; but it is thought to be sufficiently accurate to furnish a fair basis of comparison. The smaller total requirement at Yale University corresponds to the fact that the course for the Bachelor of Philosophy degree there is one of only three years.

APPENDIX B.

PRESENT POSITIONS OCCUPIED BY SOME GRADUATES OF THE MASSACHUSETTS INSTITUTE OF TECHNOLOGY IN THE CLASSES OF 1868 TO 1899.

A table is here inserted substantially like that published in this REVIEW, Vol. VII., p. 421.

Digitized by Google

Appendix C.

Statistics concerning Graduates of the Massachusetts Institute of Technology who have taken the Ph.D. Degree at European Universities from 1888 to 1905.

Total number of such graduates	29
Number who received rank of *Summa cum laude*	8
" " " " " *Magna cum laude*	11
" " " " " *Cum laude*	7
Number whose rank is unknown	3
Number who completed the work for the degree in 2 years	23
" " " " " " " " " 2½ years	4
" " " " " " " " " 3 years	2
Number whose major subject was chemistry	19
" " " " " physics	7
" " " " " mathematics	1
" " " " " geology or biology	2
Number who received the degree at Leipzig	14
" " " " " " Göttingen	3
" " " " " " Heidelberg	4
" " " " " " other places	8
Number who received the degree between 1888–90	7
" " " " " " 1893–96	5
" " " " " " 1898–05	17
Number who are now professors or assistant professors in universities or technological schools	12
Number who are now instructors in the same	7

Digitized by Google

EDITORIAL

In the light of certain forecasts as to the respective futures of the Lawrence Scientific School and the Institute of Technology, the recent changes of organization of Harvard courses in Applied Science become of interest to readers of the REVIEW.

The following votes have been passed by the governing bodies of Harvard University:—

1. A degree of Bachelor of Science is established in Harvard College, the requirements for admission of students intending to become candidates for this degree to be the same as the present requirements for admission to the Lawrence Scientific School, and the requirements for graduation to be the same as the requirements for the degree of Bachelor of Arts in respect to the number of courses required, the grade of work demanded, and the length of residence. The new degree of Bachelor of Science, like the degree of Bachelor of Arts, will be given *without* designation of any field of study.

2. A Graduate School of Applied Science is established in Harvard University. The subjects in which degrees will be granted in this Graduate School will be for the present Engineering (Mechanical, Electrical, and Civil), Mining, Metallurgy, Architecture, Landscape Architecture, Forestry, Applied Chemistry, Applied Biology, and Applied Geology. A Bachelor's degree in arts or science, or its equivalent, will be required for admission to this School.

3. The present degree of Bachelor of Science *with* designation of the field of study, on completion of any one of the present four-year programmes of the Lawrence Scientific School (namely, Civil and Topographical Engineering, Mechanical Engineering, Electrical Engineering, Mining and Metallurgy, Architecture, Landscape Architecture, Forestry, Chemistry, Geology, Biology, Anatomy and Physiology, For Teachers of Science, and General Science), will be maintained as long as it shall seem best.

4. The new organization of the instruction in Applied Science will provide in Harvard College and the Graduate School of Applied Science, jointly, five years of instruction in the several fields of study in Applied Science.

Digitized by Google

5. The arrangements, above described, will take effect beginning with the academic year 1906–07.

The *University Gazette* adds an explanatory memorandum by which it appears that candidates for the new degree of Bachelor of Science will be free to select courses offered by the Faculty of Arts and Sciences subject to the existing regulations concerning the choice of studies in Harvard College, but that candidates for the S.B., as well as for the A.B., who expect to enter the Graduate School of Applied Science will ordinarily select their College courses with the advice of the department in which they are to become candidates for a degree. After such selection the period of residence in the Graduate School of Applied Science will ordinarily be two years, but may be more in the case of any Bachelor whose preliminary work has not been thus directed. Professional studies in Applied Science will thus be assimilated with professional studies in Divinity, Law, and Medicine in having a foundation of liberal studies. The present four-year programmes of the Lawrence Scientific School being for the present continued however, students will have the alternative of taking a four-year prescribed course leading to the degree of Bachelor of Science in a designated field of study, or, on the other hand, of choosing undergraduate studies freely with the object of obtaining the degree of Bachelor of Science without designation of the field of study in three to four years, and then pursuing a course of two or more years in the Graduate School of Applied Science leading to a professional degree.

Students now registered in the Scientific School will be allowed under certain conditions to choose between the new degree of Bachelor of Science without designation of the field of study and the degree of Bachelor of Science in a designated field, upon completion of one of the present four-year programmes.

So far as the bearings and effect of this somewhat complicated plan can be estimated by the layman, the University authorities

Digitized by Google

have sought to combine all the possible plans for education in Applied Science in a single institution. A student may not only elect studies, he may elect between election and prescription. The existing prescribed four-year courses in engineering are to be maintained for a time of which the uncertain duration is expressed by the phraseology "as long as it shall seem best." The logical alternative of putting the work in applied science on the same basis with divinity, law, and medicine, is evidently not quite attained, since students are encouraged to shape their undergraduate courses in such a manner that the professional course will occupy but two years.

The plan appears to have no necessary implication of any more advanced work in applied science than is now carried on at the University except as this may result from the joint provision for five years of instruction in the several fields of study in Applied Science as stated above.

If a comparison with Institute conditions may be hazarded, the students who follow the new plan will be in much the same situation as men who enter the Institute after obtaining the Bachelor's degree elsewhere, and are able to complete our professional courses in two, three, or four years, according to the character and extent of their preparation. Whether it will be practicable for the University to carry on side by side both academic and scientific undergraduate courses with prescribed schedules, and courses in engineering for men who have completed innumerable variations of the elective courses in Arts and Science, to say nothing of graduates of other institutions, seems likely to remain for some time to come an interesting question. It may be noted incidentally that the requirements for the new degree of Bachelor of Science without designation of the field of study appear to be identical with those for the degree of Bachelor of Arts except in respect to entrance requirements. It does not appear from the official statement what degrees will be given at the end of the graduate courses.

Digitized by Google

GENERAL INSTITUTE NEWS

CORPORATION NOTES

A special meeting of the Corporation was called for February 21, to fill the vacancy in the membership of the Executive Committee caused by the resignation of A. Lawrence Lowell, Esq. The special nominating committee brought in the name of Charles A. Stone, Esq., M. I. T. '88, who was unanimously elected. At a largely attended meeting held March 14 the Nominating Committee presented fourteen names of past students of the Institute nominated by the alumni under the by-laws of the Corporation adopted Dec. 13, 1905. The Corporation, by ballot, elected the following:—

For five years, Charles T Main, '76, Boston, Mass.; Frederick W. Wood, '77, Sparrow's Point, Md.; T. C. du Pont, '84, Wilmington, Del.

For four years, Frederick K Copeland, '76, Chicago, Ill.; Joseph P. Gray, '77, Boston, Mass.; Frank L. Locke, '86, Malden, Mass.

For three years, Eben S. Stevens, '68, Quinebaug, Conn.; Richard H. Soule, '72, Brookline, Mass.; Frederick H. Newell, '85, Washington, D.C.

FACULTY NOTES

Shortly after President Pritchett's resignation the Executive Committee requested the Faculty to appoint a chairman to whom certain duties might be assigned. At the faculty meeting of February 7, Professor A. A. Noyes was elected chairman.

The Faculty Committee on Advanced Degrees and Fellowships has been occupied during the present year with the preparation of an application for the acceptance of Institute graduates by German universities with the same consideration shown to graduates of the universities included in the Association of American Universities. A copy of the application is printed elsewhere in the

Digitized by Google

present number of the REVIEW (p. 197). A special form of certificate for holders of fellowships has also been prepared by the same committee and adopted by the Faculty.

Another special committee of the Faculty has reported on procedure with college graduates entering the Institute with advanced standing. On recommendation of this committee it has been voted that such graduates will hereafter be excused from certain requirements in general studies,—including English, history, and the general option,—on the basis of their degrees and irrespective of their specific attainments in these subjects. There is also a tendency toward somewhat greater latitude in the acceptance of equivalents for French and German in departments for which these languages are deemed less essential.

PUBLICATIONS

The Register of Graduates, issued in March, has now become almost as bulky as the Catalogue, the present issue containing no less than 352 pages. The familiar register of Bachelors of Science and their occupations occupies 175 pages, the classes since 1900 already covering nearly one-third of this. The special register of Masters of Science, introduced last year, includes 72 names, of whom 18 received their degree in 1905, and 12 in the previous year. These two classes included the first Naval Cadets. The geographical register follows, and is especially notable for the number and distribution of graduates now in foreign countries. Of 143 of these, 40 are in various parts of Canada, 34 in Mexico, 10 in England. Among more remote regions are: Costa Rica, 2; Ecuador, 1; Guatemala, 1; India, 1; Korea, 3; Persia, Peru, Syria, and Turkey, 1, each; and the Transvaal, 3. 5 are in Panama. All the States and Territories and outlying possessions of the United States are, naturally, included. Among the larger cities of the United States, Boston, of course, comes first, with 691; Brooklyn and New York, second, with 349; followed by Chicago with 126 and Washington with 90. Philadelphia has 70, Pittsburg, 69, Schenectady, 38, Cleveland, 37, Cincinnati, 35, Providence, 32, Buffalo, 31, and San Francisco, 18. Among the picturesque postal

Digitized by Google

addresses are: Cockle Creek, New South Wales; Nanaimo, British Columbia; Ahmednagar, India; Chittabalbie, Korea; Aguascalientes and Tlacolula, Mexico.

The alphabetical index is followed by the titles of theses of graduates in 1905, and by a chapter of statistics, including an interesting classification of occupations for graduates of each department. The list of local Alumni Associations, mentioned in the last Register, has been expanded by the addition of the Vermont Technology Association and the Technology Club of Minnesota.

GENERAL STUDIES

Third-year students have distributed themselves among the new options in general studies as indicated in the following table:

FIRST TERM		SECOND TERM	
		Economics	
Economic History	35	Railroad Economics	63
		Railroad and Finance	66
		Labor Problems	12
		English	
Advanced English Composition, English Literature of the Eighteenth Century	9 34	English Literature of the Nineteenth Century	20
		History	
Comparative National Government	10	Municipal Government	63
International Law	67		
History of Science	53		
		Modern Languages	
French III.	5	French III. and French Sight Reading	10–12
German III.	22		
French Sight Reading	14	German III. and German Sight Reading	30–26
German Sight Reading	14		
Spanish	76	Spanish	42

Digitized by Google

SUMMER COURSES

The summer courses offered in 1906 are as follows: in Mathematics,—Analytic Geometry and Integral Calculus; Applied Mechanics; Mechanical Drawing and Descriptive Geometry, Freehand Drawing; in Mechanic Arts,—Woodwork, Forging, Chipping and Filing, Machine-tool Work; in Modern Languages,—French I., and II., German I., and II., Spanish; in Chemistry,—Inorganic and Analytical Chemistry, Quantitative Analysis, Organic Analysis and Preparations, Air, Water, and Food Analysis, Glass Blowing; in Physics,—Mechanics, Electricity, and Optics, Heat, Physical Laboratory, Precision of Measurements;—Surveying; Mechanism and Valve Gears and Mechanical Engineering Drawing;—Assaying; in Architecture,—Shades and Shadows, Design I. and II.; in Biology,—Industrial Bacteriology, Sanitary Research.

GENERAL NOTES

The will of Frank H. Cilley, '89, by which all the residual property of the testator, amounting immediately to about $70,000, and, after the death of certain annuitants, to $20,000 more, was left in trust for the benefit of the Walker Memorial Gymnasium, is being contested by the brother of the testator upon the ground that he was of unsound mind at the time when the instrument was executed. The case has been under trial before the Probate Court of Suffolk County; and a decision has recently been rendered by which the will is allowed. An appeal has, however, been taken; and the case is to be retried before a jury in the Superior Court, probably within a few weeks.

The Institute will be represented by President Pritchett at the approaching memorial of the two hundredth anniversary of the birth of Benjamin Franklin by the American Philosophical Society at Philadelphia.

In February Professor Tyler visited Alumni Associations in Chicago, Minneapolis (accounts of these meetings appear elsewhere in this number), and Buffalo, making incidental stops at

Digitized by Google

the Universities of Michigan, Wisconsin, and Minnesota. At Buffalo a luncheon was held at the Ellicott Club, with informal discussion of Institute affairs.

Professor H. A. Lorentz, the distinguished physicist of the University of Leyden, now lecturing at Columbia University, has recently made a brief visit to the Institute.

DEPARTMENT NOTES

MECHANICAL ENGINEERING

Following are the titles of theses for the candidates for graduation in Mechanical Engineering: Design and Test of a Meter for Measuring Feed Water of a Battery of Boilers 2,000 H. P.; Specific Heat at Constant Pressure for Superheated Steam; Test on Engines and Boilers of Blackstone Manufacturing Company, Blackstone, Mass.; A Duty Test on Brockton City Water Pump at Silver Lake; An Investigation of the Assistance given a Condensers Circulating Pump by Maintaining a Vacuum in the Discharge Pipe; Comparative Tests with Different Kinds of Coal on the Boilers of the Institute of Technology; Experiments on Hydraulic Mortars; An Investigation of the Effect of Varying the Percentage of Water for Standard Cement and Mortar Specimens; Efficiency Test of a 30 H. P. Westinghouse Gasolene Engine; Experimental Investigation of the Force to which Locomotive Driving Springs are subjected in Practice; Duty Test of the High Pressure Pumping Plant of the City of Taunton; Tests on an 800 H. P. and a 1,600 H. P. Cross Compound Rice and Sargent Engine for the Boston and Worcester Company, South Framingham, Mass.; Test of a Triple Expansion Pumping Engine at Taunton, Mass.; Determination of the Velocity of Steam in Vertical Pipes which will transmit Condensed Steam; Some Rack Tests of the Westinghouse Air Brake Apparatus; Tests on a 1,000 K.W. Westinghouse-Parsons Steam Turbine at Haverhill, Mass.; Test of a Diesel Engine at Baldwin Locomotive Works; Test to determine Economy and Thermal Efficiency of a Steam Generating Plant Using Crude Oil Fuel; Test of a Westinghouse-

Digitized by Google

Parsons Turbine; Tests on a Water-driven Electric Lighting and Power Plant at Farmington, N.H., with R. S. Clarke, Course XIII.; An Investigation of the Heating and Ventilating of the American Waltham Watch Factory; An Investigation of the Effect of Speed of Strain on the Strength of Rope; Test of a 500 K.W. Westinghouse-Parsons Turbine at the Savannah Electric Company; Efficiency Tests on the Chittenden Power Company's Water Turbines at Rutland, Vt.; Appel Rotary Engine; Test on 5,000 K.W. Steam Turbine of New York Edison Plant; Experimental Study of the Transverse and Compressive Strength of Full Size Locomotive Connecting Rods; The Design of an Electrically Driven Fine Goods Cotton Mill; Test on an Induced Draft System at Merrimac Manufacturing Company's Plant, Lowell, Mass.; Tests on Vacuum Cleaner; Test on Hudson Gas Engine; Tests to determine the Coefficient of Friction of Ball Bearings; Flow of Steam; Duty Test of the Wellesley Pumping Plant; Test on a Twenty-five Horse Power True Gas Engine and Producer Plant; Construction and Trial of a Yarn Testing Machine; Acceptance Test of 9,500 K.W. Curtis Turbine and Generator at Plant of Suburban Gas and Electric Company at Revere, Mass.; A Report on the Heating and Ventilation of the German Imperial Diet at Berlin; Uniformity of Speed and Efficiency of the Napier Four-cylinder Gas Engine; Test on 25 H. P. True Gas Producer and Engine at the Holmes Machine Company, East Boston; Some Tests on a Blackmer Rotary Pump; Investigation of Electrical High Temperature Furnaces; A Study of Tests upon Concrete Beams; Heating and Ventilation of Sleeping Cars; Measurement of Air with a Pitot Tube; A Study of Concrete Mixing Machines with Especial Attention to the Effect of Rapid and Violent Mixing; Variation in Density of Steel under Stress.

MINING ENGINEERING AND METALLURGY

Mr. J. T. Glidden, class of '05, has accepted a call to go to Portland, Ore., to assay the platinum metals for the United States Geological Survey in its black sand investigation, which is now in progress.

Digitized by Google

To take his place, Mr. A. W. Tucker, class of '99, has been engaged, and is now taking hold of the thesis work under Professor Richards. Mr. Tucker finds an opportunity to come back from the practical field of work to the school work, combining principle and theory, very attractive, and is enjoying his work with the students proportionately.

Seventeen men are taking theses on the concentration of ores; nine men are taking geological theses; nine men are taking theses in assaying, cyaniding, or lixiviation; seven men are taking theses in fire metallurgy or in metallography; and one is taking a thesis in the heat treatment of fire-bricks.

ARCHITECTURE

If the Corporation should be successful in obtaining land adjoining our present site and begin to plan buildings to relieve the present crowded condition of the Institute, the Department of Architecture sincerely hopes that its case will be among the first considered.

The space that we now occupy is greatly needed by the Engineering Departments. It is admirably suited for them, and would be available with little or no expense. Our direction, besides, is the only one in which they can expand.

The Architectural Department feels decidedly the necessity of expansion, and its methods of instruction call for special planning, which thus far we have only been able partially to obtain, though the Corporation has done for us the best it could with its limited means. The acquirement of land of sufficient area to demand a carefully studied scheme for its complete eventual development before beginning to build anything gives us the opportunity of presenting an ideal plan for the Architectural Department.

A very important feature of this plan would be the opportunity it should offer for instruction of the public. Our architectural schools are fitted with earnest pupils and instructors. The New York Beaux-Arts Society is steadily increasing its remarkable work, and so also the Architectural League of America. Architectural exhibitions are held throughout the land. There is plenty of enthu-

Digitized by Google

siasm within the pale, but outside there is lacking the generous support of all this effort by an appreciative public. The principal reason for this is undoubtedly the generally defective knowledge of what architecture is and what we are doing for it in the schools. It should be our effort to help cure this. We must offer sufficient attractions to the public to have it take a more personal interest in what we are doing, and make it welcome to frequent exhibitions of school work and loan collections, as well as to regular lecture courses on architecture and allied subjects. The higher the appreciation of good work by the public, the higher will rise the standard of the schools.

To accomplish all this, our important rooms must be easily accessible, and therefore on the ground floor or near it, and this brings us back to the question of plan. The department needs the opportunity to display effectively both large and small casts, a museum whose central part shall be, say, two stories high, with a one-storied aisle about it. This museum would serve also for an exhibition room of the current work of the pupils and of occasional loan collections borrowed from architects and other artists. To accomplish this in our present building or in one of its type would be a very difficult matter, but in the new scheme of building, which would undoubtedly be one involving central courts for light and air, would be our opportunity. A court could easily be covered with glass, one and two stories high, and a cast gallery, an exhibition room, life class and modelling rooms, could be placed under these skylights. In the building itself opening off the court would be placed the library, for which half as much room again as we now have is needed; and equally well placed should be a large lecture-room to which the public would be invited with our students, to listen to courses of lectures which we should have from the best authorities on all subjects associated with our profession. We should hear directly from the sculptor, the painter, the glass designer, the engineer, the biologist, and those skilled in questions of warming, ventilation, lighting, etc.

There should be, besides, a museum of building appliances directly connected with the regular lecture-room, so that its material could

Digitized by Google

be easily made to serve as illustrations in the regular course studies. It would be an easy matter to arrange the drawing-rooms, and, as far as possible, they also should be on the first floor for the readiest access to library and exhibition room.

We want nothing but the very simplest finish. We will do all the decoration of our walls with drawings and casts. So much of the education of the architect comes through his eyes, that we simply want the opportunity to have them rest on such objects of beauty as we are able to supply.

There is no better time in which to consider our prospective needs than when we are most successful.

The new arrangement of our class-room in which the students of the third, fourth, and graduate years work side by side has proved very satisfactory and most stimulating to both *ancien* and *nouveau*. It is the best feature of the French atelier, and is one that we should want to perpetuate in the new plan.

Just now the fourth-year students are finishing their drawings made in competition for the prizes offered by the Boston Society of Architects. The subject is "A Monumental Chimney in One of the Principal Halls of the Hague Palace." When this is finished, work on theses will begin.

In April is to be held in the department a competition to award a travelling scholarship of twelve hundred dollars, given by a friend in the interest of regular or special students who have taken graduate work within the last three years. This is the most generous gift for such a purpose ever given the department, and in the event of a satisfactory outcome of the competition there is a good chance of the prize becoming regularly established. It is hardly necessary to add that everything is being done to make this competition a success.

CHEMISTRY AND CHEMICAL ENGINEERING

Professor Talbot was the guest of the M. I. T. Club of Cincinnati on February 16, at their annual meeting, and later visited Professor Hughes at Miami University, Oxford, Ohio, Professor McPherson at the Ohio State University at Columbus, and met some

Digitized by Google

of the Institute men located in Cleveland, in particular those with the National Carbon Company and with the Sherwin-Williams Company. The trip through Ohio proved to be one of unusual pleasure and profit.

On March 13 the Senior students in the Chemical and Chemical Engineering Courses, the members of the Faculty of the Chemical Department, Mr. Samuel Cabot, Mr. A. D. Little, Dr. Whitney of Schenectady, Professor Norris of Simmons College, and Mrs. Richards were the guests of Professor Talbot at an informal dinner at the Tech Union. During the evening Messrs. Cabot, Whitney, Little, Walker, and Talbot discussed some of the various phases of the work of chemists and engineers after graduation from the Institute. These talks were of an informal character, and were replete with concrete illustrations drawn from the experiences of the speakers to emphasize the principles and precepts laid down. The company numbered forty-six.

Professor Walker gave a talk at Manchester, N.H., on March 12, before the Manchester Society of Arts, on Artificial Silk. This society, which includes many of the persons associated with the mills, owes much of its success to the efforts of Mr. W. K. Robbins. Dr. Walker has also spoken before the New England Section of the Society of Chemical Industry on the same topic as at Manchester.

Professor W. R. Whitney has recently given some talks at Cornell University on topics relating to the various forms of electric lamps.

Mrs. R. H. Richards recently spent a week at Cornell University, giving six lectures in their winter course in the Department of Agriculture, on "Sanitation." She has also visited New York and New Jersey, giving talks on Cost of Living, Food and Diet, and Euthenics, or better living through environment. She has also addressed a meeting of citizens at Springfield on the "Technical Education of Girls," the College Club of that city on "New Aspects of the Higher Education of Women," and the Woman's Culture Club at Northampton on the "Art of Right Living."

Professor Gill has recently addressed the Mechanical Engineering Society of the Institute on Lubricants and the Student Chemical Society on Explosions.

Digitized by Google

Dr. Miles S. Sherrill has taken charge of the short course in Theoretical Chemistry given to students of Courses III. and X., which has recently been given by Dr. J. W. Brown.

The new course of lectures on Inorganic Chemistry, which has been introduced into the third year of Course V., is given for the first time this term by Professor Fay.

A seminar for the discussion of recently published work in inorganic and analytical chemistry is held each Monday of the present term. It is attended by instructors and by some of the graduate students.

ELECTRICAL ENGINEERING

The annual excursion of the Senior students of this department took place in March, the party consisting of forty-four men, the instructing staff being represented by Professor Clifford, Professor Laws, Mr. Rodenbaeck, and Mr. Wentworth. The party left Boston on the afternoon of Tuesday, March 6, for Albany, free transportation and a special car being provided by President Tuttle of the Boston & Maine Railroad. On account of the size of the party two hotels were drawn on to furnish accommodations at Albany, where the nights of Tuesday and Wednesday were spent.

Wednesday morning early a start was made for the General Electric Company's works at Schenectady. On arrival the party was met by Mr. Emmons, the manager of the works, and turned over to four Tech men, who acted as guides throughout the day. The many interesting features of the works were thoroughly enjoyed by the men, the steam turbine department and the motors for the New York Central electric locomotives being of special interest. The courtesies of the Mohawk Club were extended to the party, some of whom took luncheon there on Wednesday.

On Thursday morning a visit was made to the works of the American Locomotive Company at Schenectady, where every facility was given for careful inspection of the construction of a locomotive from the initial forging to the finished product. New York Central electric locomotives in various stages of erection were seen and examined with great interest. The visit proved to be one of the most instructive parts of the entire trip.

Digitized by Google

After having luncheon together, the party left in a special car for New York, arriving about half-past five in the afternoon. Some of the Course VI. alumni living in New York had planned a dinner at the Café Boulevard for Thursday evening. After freshening up a bit, about thirty-five men took the subway for the meeting-place, and the party was increased by about a dozen of the New York alumni, and a most enjoyable hour was spent in dining and talking over student experiences.

On Friday morning the Waterside station of the New York Edison Company was thoroughly inspected, followed by a visit to one of the most recently installed sub-stations. In the afternoon the 59th Street power station of the Interborough Traction Company was visited, and C. W. Ricker, VI., '91, electrical superintendent, had gathered quite a group of Course VI. alumni to assist in showing the students the features of this most interesting and thoroughly modern station. From the coal-handling apparatus to the control board, everything was gone over carefully. From the sub-basement to the coal bunkers just under the roof, from the chilling breezes off the East River to the somewhat superfluous warmth of the boiler-rooms, the tortuous path of the coal conveyers was followed. It was all fascinating and mighty good exercise.

Saturday morning was spent at the General Electric Lamp Works at Harrison, N.J., and again Mr. Rogers, Mr. Marshall, and their assistants made this visit most thoroughly delightful and instructive. The process of incandescent lamp manufacture from the cotton to the finished article was shown, and the many ingenious devices and machines used in the work were carefully pointed out.

Saturday afternoon was spent at the West Street Factory of the Western Electric Company, and an appreciation was certainly had of the importance of the telephone industry. Many of the automatic machines used in manufacturing telephone apparatus were examined with the keenest interest. One of the most interesting devices seen was the machine for winding the toroidal coils which have now come to be so widely used in telephone circuits.

Some of the party returned to Boston on Saturday, a considerable majority, however, spending Sunday in New York and returning

Digitized by Google

by boat Sunday afternoon. The trip was the most successful that the students have yet enjoyed. Perfect weather, most courteous treatment, and a thoroughly fine *esprit de corps* combined to make it all that could be desired.

G. I. Rhodes, VI., '05, leaves on March 24 to accept a position as assistant to the electrical superintendent of the Interborough Rapid Transit Company of New York City. The opportunity was so exceptional that the department felt willing to allow Mr. Rhodes to leave before the end of the term. His place is being filled by Mr. A. S. Gibbs, who comes to us from the Fort Fairfield (Me.) Electric Light Company, where he has had charge of the plant.

Mr. Wentworth is spending all the time he can secure from his regular work in assisting in the development of an electrostatic separator which is giving results of great industrial importance.

As a result of the work on enclosed fuses which has been carried on this past year and is at present being continued, the manufacturers of such fuses are showing a spirit of co-operation in aiding the department in its development of work along lines which promise most valuable results.

There have been presented by the General Electric Company two mercury rectifier tubes, and by the Cooper Hewitt Electric Company one such tube, these being used by students in carrying on thesis investigation during the present term.

The Electric Storage Battery Company, the Gould Storage Battery Company, the National Battery Company, have all sent storage cells of the same rating, to be used in a careful and comprehensive study of such cells to be carried on this term as a part of the regular thesis work.

The Electro-Dynamic Company has loaned a 5 H. P. Interpole Motor for investigation, and a study is being made of its properties by one of the Seniors for his thesis.

A study of tantalum and osmium lamps is being carried on with the purpose of determining efficiency, life, and any special characteristics.

The demand for men of the present Senior Class has been very keen. Already representatives of the Bell Telephone Companies of

Digitized by Google

Boston and of Philadelphia, of the Westinghouse Company, the Allis-Chalmers Company, the Western Electric Company, have visited the department, and have spoken to the men in the class-room and as individuals. In addition there have been many inquiries by letter both for this year's class and for men of some experience in work outside the Institute. The present difficulty is to find men for places, not places for men.

On Tuesday, March 20, Dr. C. E. Lucke, Professor of Mechanical Engineering at Columbia University, came on from New York as the guest of the department, to speak at the meeting of the Electrical Engineering Society, which was held at the Union on that evening. Dr. Lucke gave a very clear and most interesting discussion of the gas engine proposition, speaking more particularly of the Koerting engine. This type is of special interest in view of its installation by the Boston Elevated Railway.

For the first time there is being given this present term some work on contracts and specifications. This work is for Senior students, and neostyled notes are being used in connection with it, giving the more important points for reference.

MATHEMATICS.

Professor Wells of the department has been granted leave of absence for the year 1906–7. Professor Osborne is engaged in the preparation of a new and considerably revised edition of his Calculus. Professor Woods and Professor Bailey are preparing a new text book as a substitute for the present course in Algebra and Geometry.

Digitized by Google

THE UNDERGRADUATES

THE CLASSES

Senior Class.—This was the largest at entrance that Tech had ever seen, and even after three and one-half years of the strenuous life it still has the largest membership of all the classes here. The number of regular students was, in the first term of the Freshman year, 433, while the special students numbered 48, a total of 481. At present there are 243 regular students in 1906, and of the few who are not designated as regular there will undoubtedly be some who will graduate.

These figures seem to show that about half the men have left the Institute since the first year. The number leaving is even greater than this, for the class has been strongly reinforced in the last two years both by men from other colleges and by former Tech men who have come back to complete their courses. Of the original 481 men associated with the class there remain only 160. The remaining 83 regular students in the class were not originally 1906 men. Why have so many men left the Institute during these three and a half years? The answer is not easy to make. One good reason, however, is that many of the 481 who entered in 1902 came incompletely prepared for their work. 1902 was the last year in which the old tuition rate of $200 applied, and many men crammed up enough to pass the entrance examinations within that year who would have waited for at least another year, had there been no advance in tuition. The part that the standard of work has played in forcing men to leave is, of course, intimately connected with the amount of work, and, although this is no place in which to discuss the matter, this latter question is certainly one which ought to be thoroughly investigated. The class has lost but three men by death.

Barring the affair of a year ago last November, the class of 1906 has had the pleasantest of relations with the world in general. Our first field day was rather vigorous, it is true, but it did not cast us

Digitized by Google

down, and our second went much better—from our point of view. The baseball team did the class credit. 1906 athletes have done their share, and in the various clubs and societies 1906 men have been prominent. *Technique*, '06, will take its place with the rest of the *Techniques*, we believe. The class dinners have been well attended, and in all affairs of like nature the men have acted in perfect harmony. The Junior Prom which the class gave last year was held on a much more pretentious scale than any previous Prom, and has set the pace for others.

Just at present the work of the Class Day Committee is the chief event. It may interest Tech alumni to know that the proposition of wearing caps and gowns at Senior Week exercises was voted down by the men at the last class meeting. The Committee on Senior Night at the Union hopes to make that event a complete success. This will be held in April.

The programme for Senior Week is as follows:—

Thursday, May 31, class dinner and degree night; Friday, June 1, alumni reception; Saturday, June 2, Musical Clubs Concert; Sunday, June 3, Baccalaureate Sermon by the Rev. Alexander Mann at Trinity Church; Monday, June 4, Class Day spread on the lawn, Senior dance; Tuesday, June 5, Commencement exercises, President's reception, Pop Concert at Symphony Hall. The suggestion of a last informal dinner at the Tech Union has been approved of, and the night selected is April 14, the night of the Senior *Kommers*. The committee in charge of preparation is Henderson, Patch, and Raynolds.

While making experiments, the results of which were to be used as a basis for his thesis, Perley Kennison Dodge, '06, of Beverly, Mass., was killed at the power plant of the United Shoe Machinery Company at Beverly, March 12. He was a graduate of the Hardie Grammar and the Beverly High with the class of 1902, and stood high in his work at Technology.

Junior Class.—The sixth semi-annual class dinner was held at the Tech Union on the evening of March 8, 1906. Among the speakers were Professor C. Frank Allen and Professor Davis R. Dewey of the Faculty, Bursar Rand, and J. H. Leavill and E. H.

Digitized by Google

Packard of the class. Alexander Macomber acted as toastmaster. The committee in charge of the dinner consisted of Wonson, Miller, Tylee, Dodge, and Howe.

On March 31, the class had charge of the *Kommers* at the Union. Asst. District Attorney Guy Ham was the guest and speaker of the evening. John M. Frank acted as toastmaster, while the committee in charge consisted of Fales, Bancroft, Coffin, Bryant, and Packard.

Sophomore Class.—President Weinz is now at the Lowell Textile School. His resignation was accepted at a meeting held on February 16, and on February 21 A. W. Heath was elected to succeed him.

The following is a list of the *Technique* Electoral Committee: chairman, F. H. McGuigan; secretary-treasurer, H. Webb; W. A. Adams, H. E. Allen, M. E. Allen, J. S. Barnes, H. D. Bounetheau, C. H. Boylston, J. C. Brooks, W. F. Dolke, Jr., A. Ellis, H. T. Gerrish, B. L. Gimson, W. B. Given, G. T. Glover, A. W. Heath, W. R. Heilman, T. W. Orr, H. R. Putnam, H. A. Rapelye, J. T. Tobin, R. B. Todd, K. Vonnegut, E. I. Williams, and G. S. Witmer.

W. R. Heilman has been elected manager of the baseball team, and W. E. Barton captain.

Freshman Class.—The class has had one dinner at the Union which was quite successful. Arrangements are now being made for another to be held there this coming month.

Very few have resigned as a result of the mid-year examinations, and the places of those who have are now filled by the following: baseball manager, H. Sharp; football manager, W. S. Laird; football captain, K. D. Godfrey.

A committee of seven, consisting of R. H. Allen, A. L. Dickerman, Jr., G. E. Hodsdon, A. F. Jackson, W. W. King, H. F. Miller, and H. E. Whitaker, have been elected to prepare for the coming interscholastic prize drill.

Digitized by Google

PROFESSIONAL SOCIETIES

Architectural Society.—The society held a smoker at the Union February 16. In response to an invitation from the society, some thirty-five or forty men of the Architectural Department and of the "Pen and Brush Club" of Harvard attended. Quite a number of Technology graduates also were present.

Professor D. Despradelle, the speaker of the evening, described the masterly and artistic way in which Paris has been laid out, as a result of collaboration between architects, engineers, sculptors, and painters.

At a smoker held March 26, Mr. Robert S. Peabody, of the Corporation of the Institute, spoke on "Architectural Sketching."

Mining Engineering Society.—At a meeting of the society held March 9, Mr. E. G. Acheson gave a lecture on "Discovery and Invention."

At a meeting held March 20 Professor R. H. Lodge was the speaker. The subject was "Ores from a Commercial Standpoint."

Mechanical Engineering Society.—The society met at the Union March 7 to hear Professor Gill speak on "Lubricants."

Electrical Engineering Society.—The regular meeting was held at the Tech Union March 20. Dr. C. E. Lucke, a representative of the De La Vergne Machine Company, and also Professor of Mechanical Engineering at Columbia, delivered an address on "Gas Engines."

Civil Engineering Society.—At a meeting March 12 Mr. F. H. Fay, '93, who is at present the head of the Structural Department in the Boston City Engineer's office, gave a talk on "The Charlestown Bridge and Similar Structures."

Chemical Society.—At a meeting March 21, at the Tech Union, Professor F. H. Thorp spoke on "Some Inventions which have influenced the Chemical Industries."

Digitized by Google

CLUBS

Civic Club.—At a meeting at the Union March 12 it was decided to hold the regular meetings twice a month instead of once a month, as has heretofore been the custom, and altogether to make the club a vital factor at the Institute. A provisional programme, as follows, was adopted:—

First Meeting. *Resolved*, That the defects in American municipal government are due to our republican form of government.

Second Meeting. *Resolved*, That the students of the Massachusetts Institute of Technology are not fitted properly by their training at that institution for active and intelligent citizenship.

Third Meeting. *Resolved*, That municipal ownership is both possible and advisable in these United States.

Fourth Meeting. *Resolved*, That the best political development of cities is hampered by State interference.

Fifth Meeting. *Resolved*, That a Corrupt Practices Act similar to that now in force in Great Britain would improve the political situation in the country.

Sixth Meeting. *Resolved*, That Congress should grant subsidies to American ship-owners.

The Walker Club held a very successful dinner March 9, at the Technology Club. Besides the undergraduate members, Professors Merrill, Dewey, Doten, and Pearson and Messrs. Blachstein and Bushnell attended. After dinner President Loring, '06, of the club, introduced the speaker of the evening, Mr. Isaac W. Litchfield, '85, who spoke on the Technology Fund.

The Chicago Club held its eleventh annual dinner at the Marliave Hotel Friday evening, February 16.

The Pennsylvania Club held a dinner at Tech Union Wednesday evening, February 14.

The Musical Clubs played at the Colonial Club, Cambridge, March 24, and outdid all former performances.

Digitized by Google

KOMMERS

Fifty men attended the first *Kommers*, February 17, and had a most enjoyable time. Governor Curtis Guild was expected to be present, but was prevented by his official duties. H. V. O. Coes, '06, of the House Committee, acted as toastmaster.

Rev. Charles F. Dole, president of the Twentieth Century Club, addressed, February 24, the second *Kommers*. Sixty-nine men, besides Rev. Mr. Dole and Mr. Rand, were present. J. H. Leavell, '07, acted as toastmaster.

Mr. Dole spoke on "The Place of Aristocracy in a Republic," defining an aristocracy as a government by the men best suited by training, education, and character to govern. He took as his American types of aristocrats George Washington, Benjamin Franklin, and Abraham Lincoln.

Ninety-two men were kept in roars of laughter March 3, at the third *Kommers*, by Professor Swain's reading of "The Awful German Language," by Mark Twain.

President Lucius Tuttle, of the Boston & Maine Railroad, proved a great attraction at the fourth *Kommers*, March 10.

President Pritchett spoke at the fifth *Kommers*, March 17. He said that the Corporation is considering the purchase of the large plot of empty ground between Berkeley and Clarendon Streets, opposite Lowell, as a site for the Walker Memorial Building. Dr. Pritchett does not believe that the gymnasium will be included in the main building, as a gym would destroy the main function of the building, that of being a student club-house. The gym will probably be built back of the Walker Memorial Building, so that it will not be a concrete part of the new building.

Mr. Ernest Thompson Stone entertained eighty-three men at the sixth *Kommers*, March 24, with a piano recital.

Digitized by Google

TECH SHOW: "THE FRESHMAN"

Following is a list of the principals of the show:—

Schofield, '09, Jenkins, '09, Ellis, '08, Boles, '07, Vonnegut, '08, Allen, '09, Adams, '08, Henderson, '06, Sando, '08, Seaver, '06, Coffin, '07, and Bancroft, '07.

Besides the usual matinée performances in Boston on Thursday and Friday of Junior Week, and the usual performance in Malden, the show this year will be given in Providence, R.I. The dates are April 26 and 27, matinées, Colonial Theatre, Boston; April 27, evening, Malden Opera House; April 28, evening, Schubert Opera House, Providence.

The libretto and lyrics were written by George Bryant, '07, whose experience in writing "The Chemical Maid," last year's successful play, has enabled him to produce an essentially modern up-to-date play, treating of college life and college men. All vaudeville features, including dances, have been omitted, and "The Freshman" approaches very nearly a professional show.

Y. M. C. A.

The Technology Y. M. C. A. held its regular weekly meeting February 27, for the first time, in the Trinity Church Parish House, the use of which has been generously offered by Dr. Mann, the rector, and the vestry committee of the church. Dr. Mann was the speaker. In a few words he warmly welcomed those present on behalf of the church, and hoped that Tech men would attend the Thursday noon meetings in the Parish House henceforth in large numbers. He was heartily glad that the Harvard merger had failed, and expressed his desire that a more intimate relation between the Institute and Trinity Church should develop in coming years.

At the meeting of the Technology Y. M. C. A. March 1, in the Trinity Church Parish House, Rev. Thomas Van Ness, pastor of the Second Unitarian Church, gave an intensely interesting and instructive talk on "Count Leo Tolstoï."

Professor Frank P. McKibben spoke on "The Social Obligations of the Engineer" at the Association meeting, March 22.

Digitized by Google

A delegation of members of the Technology Christian Association, consisting of the College Secretary, Mr. Don S. Gates, F. O. Adams, '07, L. Brock, '07, T. C. Keeling, '07, and A. Blake, '09, went to the Nashville Student Volunteer Conference February 26. This was the Fifth International Convention of the Student Volunteer Movement, and was attended by over three thousand students from all over the world.

ATHLETICS

N. E. I. A. A.

The Annual Convention of the N. E. I. A. A. was held February 27 at the Hotel Lenox. The election of officers resulted as follows: president, P. A. Bridgeman, Amherst; vice-president, L. G. Hinman, Williams; secretary, T. W. Worthien, Dartmouth; treasurer, L. Allen, Tech.

INDOOR DUAL MEET

Technology easily won the indoor dual meet from Tufts College at the gym by a score of 50 to 30.

CROSS COUNTRY

The Intercollegiate Cross Country Association met in New York on March 10 to arrange plans for next fall and elect new officers. Technology, Harvard, Yale, Cornell, Pennsylvania, Columbia, and Princeton were each represented by a delegate. Technology's representative, O. H. Starkweather, '07, was chosen treasurer.

FENCING ASSOCIATION

Harvard won the triangular fencing meet from Columbia and Tech February 16 at the gym. The score was Harvard 12, Columbia 8, Technology 7.

Harvard won the triangular fencing meet from Technology and the University of Pennsylvania at the gym March 2. The final score was Harvard 13, Tech 9, Pennsylvania 5.

Digitized by Google

TRACK TEAM

The track team held its annual dinner March 23 at the Tech Union. Fifty men were present, including the guests: Ellery Clark, President H. S. Pritchett, Major F. H. Briggs, '81, chairman of the Alumni Advisory Council on Athletics, Coach John Mahan, and M. T. Lightner, '06, captain of last year's team and formerly captain of the Harvard track team.

TENNIS ASSOCIATION

The two courts at the Technology Field are to be enlarged, to permit doubles to be played. A nominal fee of 50 cents for the season will be charged for the use of them. J. I. B. Larned, '07, will be temporary chairman of the Association until the next meeting, when an election will take place.

Digitized by Google

THE GRADUATES

COMMENCEMENT

As stated in the REVIEW for April, 1905 (page 196), it is the purpose of the past students of the Institute to hold every year a suitable alumni observance of the graduation season. The programme which was so successful last year is practically to be repeated this year. The date is Tuesday, June 5, and it is believed that most of the classes will hold spreads in the afternoon, dinners in the early evening, and will adjourn thence to the "Pop," where the entire hall will be reserved for M. I. T. men and their friends. The committee to have charge of the day is not yet appointed, but will be designated at a meeting of the Association of Class Secretaries, to be held April 20.

THE NORTH-WESTERN ALUMNI ASSOCIATION

The dinner of the North-western Alumni Association was held at the University Club, Chicago, Saturday evening, February 24. There were sixty-three members present, including thirteen from out of town. Dr. H. W. Tyler, Secretary of the Institute, who came on from Boston, was the chief speaker, and gave a very interesting talk on the Institute, emphasizing the development and progress of recent years and the confident expectation of continued advance. He was followed by Mr. B. R. T. Collins, former president of the North-western Alumni Association, and now with Stone & Webster, Boston. Mr. L. A. Ferguson, '88, second vice-president Chicago Edison Electric Company, and Mr. F. K. Copeland, '76, president Sullivan Machinery Company, followed with some concise, forceful statements as to the function of the Institute, its relation to the alumni and to the great industries of the country in general. An interesting letter was read from Colonel Livermore of the M. I. T. Corporation. The entire evening was given up to

Digitized by Google

a discussion of Technology affairs, alumni representation on the Corporation, Technology policy, etc. The evening was enlivened by music from one of the best-known Chicago orchestras and by hearty singing by the members. Before the dinner, reports of the outgoing officers were read and accepted, and new officers elected.

The officers during the past year were: Frederick Greeley, '76, president; E. H. Huxley, '95, vice-president; A. E. Zapf, '95, secretary and treasurer. The Executive Committee: J. L. Shortall, '87, E. M. Hagar, '95, and Kenneth Lockett, '02. The new officers elected are as follows: E. H. Huxley, '95, president; F. K. Copeland, '76, vice-president; and J. T. Cheney, '03, secretary and treasurer. The Executive Committee is H. P. Beers, '97, E. L. Andrews, '94, and J. L. Shortall, '87. The statement of the treasurer showed that $384 had been collected during the year from dues and $8 received from donations; that four dinners had been held, with an average attendance of forty-five members; that $116.47 old debts had been paid off, all current bills paid, and $40.86 in the treasury. Prior to the dinner an informal luncheon was given Dr. Tyler and Mr. Collins at the Chicago Club by the Executive Committee. The Association is under obligations to Dr. Tyler for his presence and his inspiring address, which cannot help but increase the enthusiasm and loyalty of the Western Tech men.

The following statistics in regard to the North-western Alumni Association may be of interest. The territory includes all the country west of Pittsburg and Buffalo. The resident membership, which includes territory within a radius of twenty miles of Chicago, is one hundred and eighty-three. The non-resident membership is four hundred and twenty-three. Dues were paid during the past year by one hundred and fifteen resident members and by one hundred and fifty-four non-resident members. Resident dues are $2 a year; non-resident dues, $1.

A. E. Zapf, '95, *Secretary*,
American School of Correspondence, Chicago, Ill.

Digitized by Google

THE TECHNOLOGY CLUB OF NEW YORK

The eleventh annual dinner was held at the Arts Club, 37 West 34th Street, Saturday evening, Feb. 3, 1906, at 7.30 o'clock. The speakers were: Walter S. Logan, "The Party in Municipal Government"; William M. Ivins, "The Independent in Municipal Government"; Bird S. Coler, "Municipal Ownership"; Calvin Tompkins, "Municipal Improvements."

ALLSTON SARGENT, '98, *Secretary*,
36 East 28th Street, New York, N.Y.

THE TECHNOLOGY CLUB OF PHILADELPHIA

The Technology Club of Philadelphia is thriving to the entire satisfaction of those actively interested in its welfare.

On January 12 we had an informal supper at the Hotel Hanover, followed by the annual meeting and election of officers. The officers elected were as follows: president, Benjamin Adams, '95; vice-president, A. W. Ayer, '89; secretary and treasurer, Paul Weeks, '02. We at that time voted to adopt the membership card proposed for such clubs as ours by the Association of Class Secretaries.

On March 9 the annual dinner of the club was held at the Flanders Hotel. There were thirty-seven men present. Our guest of honor was Mr. James P. Munroe, '82. Toasts were responded to by Mr. Munroe, Mr. John Birkinbine, President of the Franklin Institute, Prof. Samuel P. Lindsay, of the University of Pennsylvania, and Mr. Glenn C. Mead.

The club now numbers forty-six members, and has a mailing list of one hundred and thirty. As a club, we are thoroughly pleased with the settlement of the "merger" agitation.

Following the thought brought out by Mr. Munroe at our dinner, we hope to be of use to the Income Fund Committee and to any body working for the interest of Tech, where work needs to be done in Philadelphia.

PAUL WEEKS, '02, *Secretary*,
1524 Swain Street, Philadelphia, Pa.

Digitized by Google

THE WASHINGTON SOCIETY OF THE M. I. T.

The Washington Society has been holding well-attended informal dinners and smokers on the second and fourth Mondays of each month at the University Club.

At the meeting of January 8 the society had as its guest Dr. George H. Eup. Thomas, of Wellington, New Zealand, who gave an extended informal talk on the topography and unique governmental and social conditions of his native country,—its hot springs and geysers and its highly developed paternal or socialistic form of government, which provides employment for all citizens able to work and pensions for the aged, has a tax system practically preventing the accumulation of large fortunes in the hands of single individuals, and has abolished poverty and practically abolished crime among the people. Dr. Thomas also added a talk on radium, and gave an exhibition of some samples of the new element.

At a meeting on February 12 a talk on Panama and the canal was given by Ralph Whitman, '01, assistant engineer with the Canal Commission, in this city. Mr. Whitman, having been a member of the party which visited the Isthmus recently with the Advisory Board of Engineers, has become well acquainted with the state of affairs down there, and the various plans for the building of the canal, in the development of which he has had an active part. His talk, illustrated by a collection of photographs, was much appreciated by those who heard it.

At a meeting of the Council of the University Club of Washington, February 24, Henry A. Pressey, '96, and Proctor L. Dougherty, '97, former presidents of this society, were elected respectively assistant treasurer of the club and chairman of the House Committee.

Cyrus C. Babb, '90, of the United States Reclamation Service, and a former director of this society, was married on March 7 to Miss Mary Grace Crowther, at the home of the bride's parents in Luthersville, Md. The bride was attended by her sister as maid of honor and by six bridesmaids. Following a large reception, Mr. and Mrs. Babb left for a stay of ten days at Atlantic City.

Digitized by Google

They will spend the summer in Montana, where he is engaged as engineer on the Milk River irrigation project.

Washington is well represented among the fourteen nominees elected by the alumni for representation on the Corporation.

F. W. SWANTON, '90, *Secretary*,
1641 13th Street, N.W., Washington, D.C.

THE TECHNOLOGY CLUB OF THE MERRIMACK VALLEY

The annual meeting was held at the Franklin House, Lawrence, on the evening of Feb. 2, 1906. The following officers were elected: president, R. A. Hale, '77, Lawrence; vice-president, George Bowers, '75, Lowell; member Executive Committee, William P. Atwood, '76, Lowell.

Action was taken on a communication from the chairman of the Committee on Closer Relations among Graduate Organizations relative to the adoption of a uniform membership card, and the following votes were passed:—

Vote 1. That members of any other local alumni organization of the M. I. T. be granted the privileges of this organization upon presentation of a membership card signed by the secretary of such organization.

Vote 2. That this organization adopt as its official membership card the card submitted by the Association of Class Secretaries of the Massachusetts Institute of Technology.

After the business meeting, dinner was served. At its close Mr. L. O. Towne, '78, of Haverhill, spoke at some length on the Hawaiian Islands, descriptive of a trip which he made in company with Professor Barton in 1904. He showed many curios and articles of dress. A very pleasing feature of the evening was the singing of native Hawaiian songs by a quartet of young men from Haverhill, who came with Mr. Towne.

The Technology men present were Hale, '77, Collins, '97, Nelson, '77, Chase, '74, Chase, '86, Eames, '97, Hildreth, '87, Bowers, '75, Silsbee, '74, Sjöström, '88, Hamblet, '88, Alden, '77, Atwood, '76,

Digitized by Google

Edwards, '78, Towne, '78, Walsh, '81, Chalifoux, '02, Ashton, '93, Smith, '97, Morrill, '09, Morrill, '07, Stevens, '07, Brown, '08, Dalrymple, '08, Rhodes, '05, Morton, '04, Avery, '03, Barker, '96, Gage, '96, Gilbert, '95, Mather, '07, Scannell, '08, Hobson, '06, Wright, '06, Harvey, '06.

JOHN A. COLLINS, JR., '97, *Secretary*,
74 Saunders Street, Lawrence, Mass.

THE CINCINNATI M. I. T. CLUB

The annual meeting was held Friday evening, February 16, at the Business Men's Club.

The society was very much honored to have as a guest Professor Talbot of the Institute, who had come from Boston especially for this occasion. He gave a most interesting talk on the present status and future prospects of Technology.

The following officers were elected: president, George W. Kittredge; vice-president, Jno. A. Hildabolt; secretary, R. W. Proctor; treasurer Stanley A. Hooker; member of the Executive Committee, Jos. R. Hellms.

A. H. PUGH, JR., '97, *Secretary*,
1912 Madison Road, Cincinnati, Ohio.

THE TECHNOLOGY CLUB OF NEW BEDFORD

NEW BEDFORD, MASS., March 10, 1906.

TECHNOLOGY REVIEW, 83 Newbury Street, Boston, Mass.

Gentlemen,—Since the annual dinner in November, there has been but one regular meeting of the Technology Club of New Bedford, at which three new members were elected. Membership is now twenty-one. We should be pleased to hear from any Tech men who are located in New Bedford or vicinity.

Yours very truly,

CHARLES F. WING, JR., '99, *Secretary*,
34 Purchase Street, New Bedford, Mass.

Digitized by Google

THE TECHNOLOGY CLUB OF HARTFORD, CONN.

On January 6 the club held a dinner in the Rathskeller at the Hotel Heublein, at which Mayor Henney was the guest of honor and the principal speaker. The speaking was informal in its nature, and a general discussion followed Mayor Henney's address on "How can Technology Men be of Public Service in a Community like Hartford?" Those present at this dinner were George W. Baker, Henry Souther, C. F. Barrett, Edward Lorenz, W. H. Beers, C. E. Whitney, Herbert Babson, E. W. Pelton, Charles Pettee, C. T. Lincoln, Howard Burdick, Horace H. Ensworth, A. L. Patrick, G. H. Shaw, H. T. Rollins, C. R. Mason, P. M. Arnold, J. E. Lewis, and H. P. Maxim.

The club held its annual meeting February 3, at the Hartford Club, and elected the following officers: president, Howard H. Burdick, '97; vice-president, Henry Souther, '87; secretary and treasurer, George W. Baker, '92.

A. Maynard Holcombe, of the class of '94, was the toastmaster at the dinner following the election, and was introduced by President Burdick. The speakers were Charles P. Howard, Henry Souther, and H. P. Maxim. Mr. Howard talked about his trip with Professor C. S. Hastings, of New Haven, to Spain last year to see the eclipse of the sun. He showed pictures and drawings of the corona as he had seen it through the telescope, and showed for comparison drawings of the corona of 1900.

Mr. Souther spoke on conditions at the Institute to-day, and referred to the proposition to unite it with Harvard. Mr. Maxim told of some of the experiences and troubles in the early days of automobiling in Connecticut and of an early auto race at Branford.

Those present were Charles P. Howard, Henry Souther, George W. Baker, William H. Beers, D. A. Richardson, Charles T. Lincoln, Howard H. Burdick, A. L. Patrick, Charles L. W. Pettee, A. Maynard Holcombe, Edward Lorenz, Clarence E. Whitney, S. Elsworth Horton, Horace H. Ensworth, Charles R. Nason, A. L. Whitmarsh, of New Britain, H. P. Maxim, George H. Shaw, Charles F. Barrett,

Digitized by Google

Perrie M. Arnold, Walter H. Bunce, F. M. Southard, H. A. Fiske, F. C. Moore, J. A. Newlands, of Middletown.

GEORGE W. BAKER, '92, *Secretary*,
P.O. Box 983, Hartford, Conn.

THE VERMONT TECHNOLOGY ASSOCIATION

Since the last report we have lost J. F. Ancona, '03, president of the Association, who has moved to Rochester, N.Y. The annual meeting as prescribed by the constitution will be held in April or May, and it is our plan to hold it in Burlington, as a number of the men are located there. The Association holds its membership, though it has not acquired any new members recently.

R. PROCTOR, JR., '02, *Secretary*,
Proctor, Vt.

THE MINNESOTA ALUMNI ASSOCIATION

The Minnesota Alumni Association held their second annual dinner at the Minnesota Club on February 27, with the following members present: W. H. Bovey, '94, A. W. Friend, '02, C. M. Hardenbergh, '03, E. H. Hewitt, '99, T. A. Foque, '88, H. M. Hickok, '03, H. W. Jones, '82, N. E. Seavey, '99, J. W. Shuman, '97, M. L. Sperry, '00, J. Stone, Jr., '99, H. Yoerg, '95.

Professor Tyler spoke informally in regard to the present situation at the Institute and the importance of closer relations between the Corporation and Faculty and the outside alumni.

THE TECHNOLOGY CLUB OF CLEVELAND

The Cleveland Technology Club was formed in March, with R. B. Wallace, '99, as president and Azel Ames, Jr., '95, as secretary.

Digitized by Google

THE TECHNOLOGY CLUB

One very pleasant feature of the life of the Technology Club this winter has been the increasing use of the club-house by undergraduates. It is to be regretted, however, that the purpose and the advantages of the club are not more fully realized among the undergraduates. In January the club had the pleasure of hearing Dr. Morton Prince give his very interesting talk on "Multiple Personality." In March two talks were given, one by Mr. Percival Lowell on "Mars," and one by Mr. Joseph Linden Smith on the "Opening of a Tomb in the Valley of the Kings."

LEONARD T. BUSHNELL, '05,
83 Newbury Street, Boston.

Digitized by Google

NEWS FROM THE CLASSES.

1868

PROF. ROBERT H. RICHARDS, *Sec.*, Mass. Inst. of Technology, Boston.

Walter H. Sears has recently been appointed chief engineer of the Aqueduct Commission of New York City, at a salary of $10,000 a year. He seems very happy in his new position.—Eben S. Stevens has been elected a member of the Corporation of the Massachusetts Institute of Technology, to serve three years. He is one of the members of the Alumni Association who goes in under the new by-laws providing for alumni representation on the Corporation.—Whitney Conant and his wife were visited the other day by Robert H. Richards. They are at Hotel Regent, New York City, where they are living very happily. The two old classmates had a fine time together, talking over old times.—Robert H. Richards has recently made a trip to Lebanon, Pa., where he had been called in consultation in regard to the new magnetic concentrating plant. He also visited Capelton, Can., to consult in regard to concentration of pyrites, and he visited Halifax, where he spoke before the Mining Society of Nova Scotia in behalf of technical education and testing works for the Province.

1872.

PROF. C. FRANK ALLEN, *Sec.*, Mass. Inst. of Technology, Boston.

R. H. Soule has been elected as one of the alumni members of the Corporation, to serve for three years. Soule has many excellent qualities for the office. Before entering the Institute, he had done some work in civil engineering, but took his degree as a mechanical engineer, and was for three years in general mechanical engineering in responsible positions, after which he went into railroad work,

Digitized by Google

being trained for this on the Pennsylvania Railroad, on which he had experience in special lines, such as signal work and the testing department. In railroad work he served as superintendent of motive power upon several divisions of the Pennsylvania and on one of the divisions of the West Shore Railroad, was superintendent of motive power for the entire system of the Norfolk and Western Railroad, and was at one time general manager of the Erie Railroad. For a time he represented the Westinghouse people, partly on signal work and partly in developing and introducing the friction buffer, which has lately been accepted as a necessary feature of the heavy cars now used. He was also for a while connected with the Baldwin Locomotive Works, part of the time representing them abroad, and for a time in Chicago. He finally opened a private office as a general railroad mechanical expert, the arrangement of railroad shops being a specialty for which he was in demand. Soule also had high standing in the railroad professional organizations, having been selected as one of the editors of the Car Builders' Dictionary, and having been also president of the Master Mechanics' Association. His experience has covered a very wide range of work. His residence has been in various parts of the United States. He has had a business experience abroad and a college training both at Harvard and at the Institute. All these unite in giving him an equipment for breadth of view which ought to make him one of the most valuable members of the Corporation. From the "Brookline standpoint" Soule is all right, as he has a son now in the second year's class in architecture at the Institute. Soule was looking fine the last time the class secretary saw him, a week or two ago.—F. A. Emmerton is abroad for a time. He still makes Cleveland his home.—M. B. Patch is still at Buffalo, where the secretary saw him a year ago. He is the same old Patch, grayer than he was thirty years ago, but a good deal the same. His second daughter is to be married within the next month.—C. F. Allen has recently been elected president of the New England Railroad Club. He has also just returned from the Convention of the American Railway Engineering and Maintenance of Way Association in Chicago. These are points of contact with railroad work which he finds it necessary

Digitized by Google

to keep up, so as not to get into a rut. On the return from Chicago he stopped over at Cleveland to talk to the Institute men there who could be assembled at short notice, and he is pleased to state that a Tech Club was organized then and there, with R. B. Wallace, '99, president, and Azel Ames, Jr., '95, secretary.—In Cleveland the class secretary also found E. A. Handy, '75, occupying the chair of general manager of the Lake Shore Railroad, and A. W. Johnston, '73, general manager of the Nickel Plate Railway, both recent appointments. Johnston is also vice-president of the Maintenance of Way Association, and was one of the secretaries of the International Railway Congress which met last May in Washington.

1874.

CHARLES F. READ, *Sec.*, Old State House, Boston.

George H. Barrus, president of the Class Association and vice-president and member of the Council of the American Society of Mechanical Engineers, has been invited by President Roosevelt to serve on the newly appointed national advisory board on fuels and structural materials. Mr. Barrus joined the American Society of Mechanical Engineers in 1883, and since that time has contributed many papers and discussions to its Transactions. He was chairman of the committee of the society which prepared a "Standard Method of Conducting Duty Trials of Pumping Engines." He also served on a similar committee of the society for devising standard trials of locomotives and one for standard tests of engines in general. He was also a member of the Revision Committee on the "Code of Rules for Conducting Boiler Trials," the other members being Messrs. Emery, Porter, Thurston, Kent, Dean, Hunt, Coon, and Potter. He is a member of the Boston Society of Civil Engineers, the New England Water Works Association, the Society of Naval Architects and Marine Engineers, and belongs to the Engineers' Club, the Technology Club, the Bostonian Society, the Boston Club, and the Allston Golf Club. He is the author of books entitled "Boiler Tests" and "Engine Tests," as

Digitized by Google

already stated; also of one on the "Tabor Steam Engine Indicator" and one on "The Star Improved Indicator," and has contributed many papers and articles to societies of which he is a member and to mechanical engineering journals.—A lunch of the Class Association was held February 19 at the Boston Club by invitation of the president. The following members were present: Messrs. Baldwin, Barrus, Blunt, Chase, Magee, Read, and Russ. The principal business transacted was the relation of the Class Association to the Technology Fund Association.

1875.

E. A. W. HAMMATT, *Sec.*, 10 Neponset Block, Hyde Park, Mass.

The annual meeting and dinner was held at Young's Hotel on Friday, March 9, at 7 P.M., with the following attendance: President Thomas Hibbard, Vice-President B. L. Beal, and Messrs. Bowers, Dorr, Eddy, Hammatt, Handy, J. M. Howe, Mixter, and Willard. Prentiss and Warren had sent word that they intended to be present, but failed to appear.—C. H. Williams resigned from the executive committee, and Willard was elected to fill the vacancy, and the rest of the old board were re-elected. Several letters were received from men unable to attend.—Handy has recently been made general manager of the L. S. & M. S. Ry. Co.—Edes is now connected with the "Maintenance of Way" Department, and says that while he likes being in civilization, he does not enjoy the work so much as he did that of location. He says the outlook for railroad work in California is very bright for the coming year.—Bush, from whom the secretary has not heard for nearly fifteen years, is now in Pittsburg, Kan.—The secretary recently received a letter from Goodale describing a trip he made to Alaska in July last, with the American Institute of Mining Engineers. He says:—

"The trip from Vancouver to Skagway is through channels between islands and the main-land, a distance of abont nine hundred miles, and was like a trip on a large river, as there were only two places where for an hour or two the swell from the Pacific was felt." From Skagway to White Horse the party

Digitized by Google

took the White Pass. At one point the remains of a large lake were passed. It seems that, when building the railroad, to get a suitable grade the engineers dug a ditch in order to lower the level of this lake about ten feet; but, as the shores were clear sand, the out-rushing waters cut down nearly 70 feet, and practically drained the lake. White Horse is at the head of navigation of the Yukon and its tributaries, and is at an elevation of 2,084 feet. Dawson, 450 miles down the Yukon at its junction with the Klondyke, is 1,200 feet above sea-level. This fall of nearly two feet per mile gives quite a current; and the trip down by steamer, including a number of stops, took thirty-eight hours, while the return trip took about eighty hours. At midnight it was light enough to read on the steamer deck, making it hard to realize the time of day.

Navigation between White Horse and Dawson opens about June 5 and closes early in October; and during eight months of the year the only transportation for passengers is by the Royal Mail Stages, which make the 365 miles in from four to five days. With the low temperature of midwinter, sometimes 70° below zero, it can be imagined that travelling for pleasure is not very extensive during that season. One of the things furnished for the entertainment of the party at Dawson was a baseball game, to be called at midnight; but on account of rain it was omitted.

Since Aug. 15, 1896, when gold was first discovered in the neighborhood of Dawson, to the close of 1905, about $124,000,000 has been taken from the Yukon territory. The yearly production has declined since 1900, but the introduction of dredging machinery and hydraulic appliances may change this. Dredging, however, is somewhat expensive, because a few feet below the surface of the ground, even in midsummer, is eternal frost, which must be thawed by steam jets, and wood costs $15 a cord.

1877.

RICHARD A. HALE, *Sec.*, Lawrence, Mass.

The annual dinner and reunion was held at the Technology Club Wednesday, February 28, with nineteen members present. The following officers were elected: Henry H. Carter, president; C. F. Lawton, vice-president; R. A. Hale, secretary and treasurer. Music was furnished by Mr. Jenney, and former Tech songs were rendered, in which all joined. It was concluded to have some special features

Digitized by Google

at the meeting in 1907, which will be the celebration of the thirtieth anniversary.

1878.

LINWOOD O. TOWNE, *Sec.*, Haverhill, Mass.

For the annual reunion the members of the class were guests of President Baker at the Union Club, Boston, January 6. Except at the twenty-fifth anniversary, the number present was greater than any since graduation, and the wholly informal event was much enjoyed. Besides the host there were present Bradford, Collier, Edwards, Henshaw, Higgins, Miller, Nichols, Rich, Robertson, Rollins, Sargent, Sawin, Schwamb, Williams, Woolworth, and Towne.—For ten days in latter February the secretary was on pleasure bent in New York City. He was especially favored by chances to visit the tunnel work now being done under the East River by the Rapid Transit Construction Company from the Battery to Joralemon Street, Brooklyn, which is running two thirteen-feet "tubes," and also by the Pennsylvania Railroad Company at 34th Street and Long Island City, where four twenty-three feet tubes are being placed to accommodate electrically not only their own trains, but those of the New York, New Haven & Hartford. Not since his years in Colorado has the secretary seen so much of underground, and never then such large tunnels. The caissons, with all their interesting and dangerous elements, the shields, the rings for forming the tubes, the ingenious methods of connecting their plates, and many other points proved of great interest. Having to sign the "death book" before descent gave a certain air of distinction and adventure to the occasion, as well as relieving the company of possible funeral expenses. The story of the workman who was recently forced by the compressed air up through twelve feet of mud, fifteen feet of water, and finally shot twenty-five feet into the air,—and lived to swim and tell the tale,—had all the gruesome points needed by a quiet Massachusetts man in giving atmosphere to the Metropolis. It seems that at the time the New York *Journal* had the exclusive story, regarded by the other papers, yellow and

Digitized by Google

otherwise, as quite duly and appropriately visionary. Imagine the swelling joy of injured innocence! In these undertakings the secretary was cared for most royally (even to the courtesies of the "Hog House" provision for the outer man before descent and the inner one on ascent) by Messrs. Geo. A. Fairfield, M. I. T. '04, and Roswell Davis, '05. As he was further the guest of Stanley A. Foster, '03, of the New York Consolidated Gas Company, during his stay in the city, it was quite a renewal of youth to one who is having to think of his class as one in the "early days." With other entertaining joys provided by friends during his visit, the secretary feels that he has been quite gay.—Mr. George W. Kittredge, of Cincinnati, Ohio, formerly of North Andover, Mass., was on April 1 appointed chief engineer of the New York Central & Hudson River Railroad, with headquarters in New York. Mr. Kittredge, after a short service on the development of the South Boston Flats where the New York, New Haven & Hartford Railroad is now located, went in 1880 to the Pittsburg, Cincinnati & St. Louis Railway Company, one of the Pennsylvania Lines. He was with the Pennsylvania Lines for ten years, being employed in the Maintenance of Way Department. In 1890 he went to the Cleveland, Cincinnati, Chicago & St. Louis Railway Company, and on July 1, 1891, was made chief engineer of that company,—a position which he has since held. He is also chief engineer of the Peoria & Eastern Railway, and of the Louisville & Jeffersonville Bridge Company. He is a member and past president of the Engineers' Club of Cincinnati, and was a charter member of the American Railway Engineering and Maintenance of Way Association, having been its second president, and since then one of its Board of Directors. He is also a member of the American Society of Civil Engineers. The position of chief engineer of the New York Central & Hudson River Railroad is looked upon as one of the highest positions in railroad engineering that this country has.

Digitized by Google

1882.

WALTER B. SNOW, *Sec.*, 29 Russell Avenue, Watertown, Mass.

The twenty-fourth anniversary dinner was held at the Technology Club, Tuesday evening, January 30. Gooding, Hall, Munroe, W. B. Snow, Warren, and A. W. Walker were present. Plans were discussed with regard to the twenty-fifth anniversary.—At a recent meeting of the Alumni Association of the Philadelphia Textile School, the principal speaker was John P. Wood, of William Wood & Co. He expressed the belief that the Textile School should apply itself to working out the problem of some standard method of cost finding which might answer for all products which the textile industry produces.—Thomas B. Carson, who is secretary and treasurer of the Bettendorf Metal Wheel Company, is also second vice-president of the Iowa Manufacturers' Insurance Company.—Harry G. Manning is now busily engaged in remodelling all the plants of the Crucible Steel Company of America. His present address is Pittsburg, Pa.—John H. Ross was abroad at the time of the class dinner.—James P. Munroe recently spoke before the Civic League of Lynn on "Civic Watchfulness," before the Harvard Teachers' Association on "The Joint Responsibility of the School and the Community," and before the Twentieth Century Club of Boston on "Technical Schools."—At the hearings given before the Congressional Ways and Means Committee regarding the removal of the tax on alcohol which has been denaturized, Rufus F. Herrick appeared for the New England Section of the Society of Chemical Industry and the American Chemical Society. He stated that it was entirely practical to denaturize grain alcohol so that its purification would be much more difficult and costly than is the illicit distillation of whiskey from corn, sugar, or molasses. He is busily engaged in an educational campaign among the New England manufacturers who would greatly profit by the removal of the present tax.—Walter B. Snow was recently re-elected for the fourth consecutive three-year term as trustee of the Free Public Library of Watertown, Mass. He is chairman of the board.

Digitized by Google

1884.

PROF. WILLIAM L. PUFFER, *Sec.*, Mass. Inst. of Technology, Boston.

The annual dinner of the class was held at the Technology Club, Wednesday, February 21, at 6.30 P.M. There were present Appleton, Bardwell, Doane, Gill, Hammett, Mellen, Puffer, Tyler, and Rotch. After a very enjoyable dinner and exchange of ideas, messages and letters were read, more of which were received than at any class dinner within the recollection of the present secretary.—The secretary is pleased to announce that T. H. Bartlett has received the appointment of register of the Lewiston Land Office, Idaho, for the next four years.—Dearborn is generally a regular attendant, but was detained at home by sickness.—Ryder sent his usual regrets that the dinner had not happened at some time when he had not something else to do.—Lyle sent a long letter from his station at the Augusta Arsenal, and says:—

> I am on my "last enlistment" for three years, as we say in soldiers' parlance, entering on it at 12 M. Jan. 21, 1906. I completed my forty years' service in the army on Oct. 17, 1905, and thirty years' work in the Ordnance Department the same day, by a coincidence. Will complete thirty years' service with the Treasury Department on June 6, 1907, or a little over a year hence. I begin to feel like letting up on the hustle.

—A very jovial letter from Bridgman announces that, while he has no gray hair or absence of hair like some of the past secretaries, he detects the passage of the twenty-five years by the presence of bifocal lenses, a vulnerable heel, and an undue difficulty in administering sixteen slaps on the celebration of his eldest son's birthday.

1885.

I. W. LITCHFIELD, *Sec.*, 161 Devonshire St., Boston.

The election of Frederick H. Newell as a three-year-term member of the Corporation of the Institute brings a new honor to Mr. Newell,

Digitized by Google

as well as to '85. Newell has won his spurs on the United States Geological Survey, and, as chief engineer of the Reclamation Bureau, holds one of the most important engineering positions in the government service. The class of '85 is represented in Institute affairs by a member of the Corporation, the president of the Alumni Association, the chairman of the Income Fund Committee, two members of the Faculty, and one of the lecturers for the present year.—There are few events at Camp Walker that escaped the omnipresent lens of the camera; and, when Fred Kimball threw some new camp pictures on the screen at the dinner, February 3, we were again up in the woods, doing it all over again. No business was transacted at the meeting; and, save a few remarks on the Income Fund by Morss, it was purely social, and was one of the most enjoyable meetings the class has ever held. Those present were C. R. Allen, Bartlett, Benton, Dodge, Fry, Homer, F. M. Kimball, J. L. Kimball, Litchfield, Little, Morss, Osgood, F. H. Page, Pierce, Plaisted, Pratt, Steele, Talbot, Worthington. Dr. Schubmehl was present as an adopted member of '85.—Nat Robertson and E. H. Mumford happened in town on the same day recently, and put up at the same hotel. A small '85 delegation met them, and tried to make them comfortable.—Since Pickernell was made assistant to the president of the American Telephone and Telegraph Company, he is away from Boston most of the time. A petition is in circulation among his friends in the class, asking that he be given a switchboard in one of the Boston exchanges, so that we may see something of him.—The office of the Samson Cordage Works, of which H. G. Pratt is treasurer, has been moved from 115 Congress Street, Boston, to 88 Broad Street.

1886.

PROF. A. G. ROBBINS, *Sec.*, Mass. Inst. of Technology, Boston.

It is with a feeling of deep sorrow that the secretary reports the death of our classmate, J. Frank Seavey, who died in Melrose, Mass., January 15 last. In 1882 Seavey entered the Institute from the Charlestown High School, and took the Mechanical En-

Digitized by Google

gineering Course. Since graduation he has been engaged in civil and mechanical engineering, for the last three years with the American Steel and Wire Company of Worcester. A wife and two children survive him.—Announcement is made elsewhere of the election of Locke to term membership in the Corporation of the Institute of Technology. He has recently started for California, there to seek rest and renewed strength in an extended vacation.—Noyes was recently elected chairman of the Faculty of the Massachusetts Institute of Technology.—The secretary has received an advertisement of the Buffalo Testing Laboratory, of which Ricker is president and general manager. Shedd, '81, is associated with him as chemist and metallurgist in the same enterprise.—Winsor was elected president of the New England Street Railway Club at its last meeting.

1887.

EDWARD G. THOMAS, *Sec.*, 161 Devonshire Street, Boston.

The twenty-third annual dinner of the class of '87 was held at Young's on Feb. 21, 1906. After the reports of the secretary and treasurer were read and filed, the usual election resulted in the choice of the following officers for the ensuing year: president, Frank F. Carpenter; vice-presidents, Gelett Burgess and H. S. Adams. J. A. Cameron was appointed chairman of a committee to arrange for our twentieth celebration in June, 1907, with authority to add any members of the class he may desire. The secretary reported on the progress of the Income Fund, and the president was directed to appoint an official Income Fund Committee of the class of '87. After business was disposed of as above, the class listened with great pleasure to the interesting remarks of the guests of the evening, Professor Elihu Thomson, of the General Electric Company, and Professor Harry E. Clifford, of the Institute. While both gentlemen spoke upon the growth of knowledge of electricity and its commercial applications, Professor Clifford very greatly interested all present by putting before us his views as to needed improvement and change in the present methods of teaching science.

Digitized by Google

The following members of the class attended the dinner: H. D. Sears, Draper, Coburn, Cameron, W. A. Whitney, H. S. Adams, Burgess, Carpenter, W. H. Brainerd, Taintor, Wakefield, H. F. Bryant, Young, Very, Souther, Tripp, Gerrish, Fred Thompson, and E. G. Thomas.

1888.

WILLIAM G. SNOW, *Sec.*, 1108 Penn Mutual Building, Boston.

Stephen Child, landscape architect and consulting engineer, has removed to the Ford Building, 15 Ashburton Place, Boston.—George C. Scales visited Boston in February, while on a trip from Porto Rico. Next year he intends to return to the United States permanently.—G. U. G. Holman has left Quebec, and is now located in the Land Title Building, Philadelphia, Pa.—Loveland has recently been abroad on a short business and pleasure trip.—H. F. Pierce is treasurer of the Boston and Oaxa Mining Company of Mexico, with headquarters at 7 Water Street, Boston.—B. R. T. Collins, representing the Alumni Association, and Dr. H. W. Tyler, the Faculty, visited Chicago in February, and on the 24th were guests at the banquet of the North-western Association of the M. I. T., held at the University Club. Collins spoke in favor of the Technology Fund needed for new equipment and for general use, and contrasted the Institute of to-day with what it was at the time '88 was there, pointing out the great gains made in the number of students, in its plant and its prestige, and the changes in the *personnel* of the Faculty and of the Corporation, and the infusion of younger blood in these bodies. He called attention to the fact that the future policy of the Institute must be determined largely by its financial condition, and urged the North-western alumni to do their share towards providing for the immediate needs of the Institute by subscribing liberally to the Income Fund.—Stone & Webster have issued their "Electric Railway and Lighting Properties" manual for 1906, giving brief descriptions of the various properties under their management. The combined capitalization of the twenty-eight companies is: bonds

Digitized by Google

issued, $41,331,000; stock issued, $52,881,200; total, $94,212,000. Miles of equivalent single track operated, 817; passengers carried, 132,300,000; incandescent lamps (16 candle-power) in service, 920,000. The total earnings and expenses in 1905 were: gross earnings, $10,921,520; operating expenses, $6,829,718; net earnings, $4,160,405; interest charges, $1,777,404; net profits, $2,448,805; dividends, $866,700; surplus, $1,582,105.

1889.

PROF. F. A. LAWS, *Sec.*, Mass. Inst. of Technology, Boston.

The *Electrical World* of Feb. 24, 1906, contains the following account of W. H. Merrill, Jr.:—

William Henry Merrill, Jr., was born Jan. 10, 1868, at Warsaw, N.Y., and was educated in Holderness School, Plymouth, N.H., and at the Massachusetts Institute of Technology, Boston, where he was a member of the class of '89. Upon leaving the Institute, he became connected with underwriters' electrical inspection work in Boston, and in 1893 went to Chicago, where the following year he started in a very small way what has, under his supervision, now grown to be the Underwriters' Laboratories of the National Board of Fire Underwriters, where all the testing of electrical and other apparatus for the benefit of fire underwriters of the United States is carried on. The history of Mr. Merrill's engineering work is practically identical with the history of underwriters' inspection and testing since that time. The Underwriters' Laboratories soon outgrew the cramped quarters in the down-town district of Chicago, and were moved to a location on East Twenty-first Street. In 1905 a large model fire-proof building was erected at East Ohio Street on the lake shore. The Underwriters' Laboratories, Inc., of which Mr. Merrill is the secretary, is the testing station of the National Board of Fire Underwriters. Its purpose is to examine and test all devices and materials affecting the fire hazard. The principal work of this institution is the testing of fire extinguishing and retarding devices, but an important department is devoted to the testing of electrical fittings. It is the best equipped laboratory plant of the kind in the world, and is constantly extending its work through affiliation with important insurance organizations, manufacturers' associations, municipal departments, and man-

Digitized by Google

ufacturing companies. Mr. Merrill is also secretary of the National Fire Protection Association, which includes in its membership all of the insurance boards and organizations in the United States and Canada, as well as the American Institute of Architects, American Society of Mechanical Engineers, American Water Works Association, and other national societies. It compiles all of the rules of the National Board of Fire Underwriters covering fire protection subjects, and is the most important organization engaged in engineering work affecting the insurance interests. He is also secretary of the committee of consulting engineers of the National Board of Fire Underwriters, having in charge for that body the engineering work covering gas, oil, and all hazards except electricity. He is chief electrician of the Electrical Bureau of the National Board of Fire Underwriters, supervising the electrical inspection service in twenty Central Western States and Territories, and having in charge the compilation and publication of the quarterly reports of electrical fires for the United States. Mr. Merrill is also a member of the electrical committee of the Underwriters' National Electric Association and of the National Conference on standard wiring rules, which organizations have in charge the compilation of the National Electrical Code.

—Henry M. Hobart has, in collaboration with Henry W. Turner, published through the Messrs. Whittaker, of London and New York, a volume entitled "The Insulation of Electric Machines." The book contains 297 pages, including the index. This is a most timely contribution to electrical literature, and the authors are to be commended for their efforts to bring together and systematically arrange the scattered literature of this most important subject. Among the subjects considered may be noted the general discussion of the properties of insulating materials, including the effects of moisture and temperature, the effect of varying thickness and Baur's law for "electric breaking strength," and the influence of the shape and size of the electrodes used in testing. In Chapter III. the insulation of "magnet wires" is considered. Chapter IV. is devoted to Stemmetz's investigation of the disruptive strength of insulating materials. In Chapter V. the insulating properties of mica and mica compounds are fully discussed. Insulating materials for bushings, terminal blocks and flanges, and commutator insulation are treated of in Chapters VI. and VII. The subject of in-

Digitized by Google

sulating varnishes, paints, and impregnation materials, oil for insulation, and the testing of liquid insulators occupy Chapters X. and XI. The insulation of these materials, such as paper and impregnated fabrics, are treated in Chapters XII. and XIII. The application of the various materials to machines is considered in Chapters XIV. to XXII., inclusive. A valuable bibliography is to be found in Chapter XXIII.—W. M. Duane has recently been appointed chief engineer of the Cleveland, Cincinnati, Chicago & St. Louis Railway Company and the Peoria & Eastern Railway Company.

1890.

GEORGE L. GILMORE, *Sec.*, Lexington, Mass.

Professor W. Z. Ripley, of Harvard, left March 2 for Europe. He will study industrial conditions, and return to Cambridge about September 1. Ripley was one of the speakers at the dinner of the Massachusetts Reform Club in Boston, February 2.—Charles Hayden has been elected a director of the Republic National Bank of Boston.—John Dearborn, who was a member of the class in its early days, is secretary of the Puritan Club of Boston.—Major Hayden was chairman of the committee at the banquet of the Real Estate Exchange at the Somerset, February 27.—H. B. Roberts is with the Reinforced Cement Construction Company at 10 East 23d Street, New York, N.Y.—Charles Neave is counsel for the General Electric Company, and also for the American Telephone and Telegraph Company.—Allan Rogers is now permanently located in New York as assistant superintendent of mines of the Guggenheim Exploration Company.—George A. Sonnemann and wife sailed for Europe early in February for a four months' trip.—Darragh de Lancey is now at Waterbury, Conn., as manager of a branch of the buckle trust. Darragh recently underwent an operation for appendicitis, which was most successful, as he was out two weeks later.—George W. Fuller is travelling in Europe.—Mrs. Ellen H. Richards was entertained at the home of Mr. and Mrs. Calvin W. Rice, '90, in Montclair, N.J., on the occasion of her visit to that

Digitized by Google

city February 1, to give an address before the Woman's Club. In the evening Technology graduates living in Montclair called informally to greet Mrs. Richards: Mr. P. H. Thomas, '93, and Mrs. Thomas; Theo. T. Dorman, '93, and Mrs. Dorman; Warren C. Taylor, '02, a cousin of Mrs. Richards's, and Mrs. Taylor. Others invited, but unable to attend, were: Mr. H. J. Conant, '87, and Mrs. Conant; Chester H. Wells, '02, and Mrs. Wells; Dr. Ethel B. (*née* Blackwell) Robinson and Mr. Robinson. Mrs. Richards wore a beautiful silver-gray silk, with the other Tech color of cardinal ribbons at the throat, in keeping with the occasion. Appreciation of her was also shown two days previous in a reception tendered to her by Miss Margaret A. Maltby, '91, and others at the Women's University Club, Madison Square, New York. About twenty Technology graduates met at dinner on this delightful occasion. Calkins, '90, was toastmaster, and responses were made by nearly all present. Mrs. Richards gave the history of her connection with the institution of coeducation at Technology, which is of especial interest.

1891

HOWARD C. FORBES, *Sec.*, 4 State Street, Boston.

The death of Theodore Spencer is noted elsewhere in the REVIEW.—Fred A. Wilson (J. T. Wilson & Son) has been constructing, as general contractor, the million-dollar residence at Pride's Crossing, Beverly, for Henry C. Frick, of Pittsburg. The magnitude of this establishment is indicated by the fact that the automobile station and power house cost $55,000, and the fence alone costs $111,000. An excellent account of the building was given in the Lynn *Item* of Feb. 1, 1906. Wilson has been the general contractor, and several other Institute men have also been connected with the work, as follows: Leonard C. Wason, '91, of the Aberthaw Construction Company (concrete); W. I. Palmer, '91, of Palmer, Parker & Co. (lumber); Clifford M. Tyler, '91, of the Boston Tile and Mantel Company; F. W. Lord, '93, of the Lord Electric Company; and Frank A. Pirie, '05, who has been an assistant to Mr. Wilson.

Digitized by Google

—Every '91 man should make an effort to come to the reunion in June, which will be our fifteenth anniversary. A special programme will be arranged. Don't make any engagement for Monday, Tuesday, and Wednesday, June 4, 5, and 6.—F. W. Füger is located at the Agricultural College, Michigan, as professor of military science. He writes that he has about 450 men to instruct, and finds the work very congenial; also, that this is his first service away from his regiment in nearly fifteen years.

1892.

PROF. WILLIAM A. JOHNSTON, *Sec.*, Mass. Inst. of Technology, Boston.

The present address of a number of men who have made a change in their location since the last register of graduates was issued follows: C. A. Beal, 19 Ocean Terrace, West Lynn, Mass.; C. H. Bigelow, 515 N. Texas Building, Dallas, Tex.; R. D. Chase, 59 Fourth Street, New Bedford, Mass.; G. E. Dadmun, 20 Wall Street, New York, N.Y.; J. F. Johnson, 32 Board of Trade Building, Montreal, P.Q.; W. H. Lane, 173 Kennebec Street, Portland, Me.; E. G. Manahan, 3212 Harvey Avenue, Cincinnati, Ohio; W. H. Messenger, 21 Municipal Building, Brooklyn, N.Y.; H. R. Moody, College of the City of New York, New York; F. C. Moore, 125 Trumbull Street, Hartford, Conn.; F. E. Perkins, 1133 Broadway, New York, N.Y.; H. M. Phillips, Halstead Street, East Orange, N.J.; A. G. Pierce, 176 Federal Street, Boston; A. W. Pierce, 407 Tyler Street, Pittsfield, Mass.; A. G. Ranlett, 400 Rialto Building, San Francisco, Cal.; G. F. Rowell, 16 Exchange Place New York, N.Y.; R. Selfridge, 18 Gramercy Park, New York, N.Y.; F. C. Shepherd, 1 West 34th Street, New York, N.Y.; LeR. K. Sherman, 6128 Lexington Avenue, Chicago, Ill.; Richard Waterman, Meadville, Pa.—George H. Ingraham left Boston in January for an extended trip to the continent. Ingraham expects to combine study with pleasure.—Leonard Metcalf left Boston February 14 for a three months' trip to Puerto Rico.—John A. Curtin was elected, March 12, a selectman of the

Digitized by Google

town of Brookline, Mass. Curtin conducted a vigorous campaign, and secured a large number of votes.—Charles F. Park, who, as director of the Lowell Institute School for Industrial Foremen, has conducted the work with such marked success, was recently tendered the directorship of the new "Franklin Union," a name to be applied to the organization which is to administer the funds accumulated from money left by Benjamin Franklin for the benefit of the people of the "Town of Boston." I understand that Park was asked, by the trustees of the fund, to outline a policy that might be followed by the committee in the discharge of their duties. A study of like institutions was made, and a report was submitted outlining a policy which, I understand, has been adopted by the committee. Park was strongly urged to accept the directorship, but after considerable thought has decided to continue to devote his energies for the benefit of the Institute. This is an example, not infrequent at the Institute, of men on the instructing staff being tendered attractive positions which would take them away from the Institute, but who have refused these positions, continuing to devote themselves to the cause of their Alma Mater. It is hoped that in due time such unselfish devotion will be suitably rewarded.

1893.

FREDERIC H. FAY, *Sec.*, 60 City Hall, Boston.

It is our sad duty to announce the recent sudden deaths of two members of the class, Frederick T. Towne and Henry T. Woods. Fred Towne will be remembered as one of the most popular, most genial, and best beloved men in all the class; and in his later life, as general superintendent of the Yale and Towne Manufacturing Company of Stamford, Conn., he accomplished notable work for the welfare of his employees, and by them was held in an esteem such as we who knew him earlier can appreciate. Harry Woods was of a retiring disposition, and was, perhaps, less widely known than Towne; but at the Institute and at Harvard, where he graduated later, he had a wide circle of friends who realized his sterling worth. In the

Digitized by Google

passing away of Towne and Woods the class loses two of its most loyal members. Accounts of both of these men will be found elsewhere in this number of the REVIEW.—Frank S. Badger is engaged in hydraulic engineering work on the Pacific coast, being associated with Samuel Storrow, with headquarters at 1021 Shreve Building, San Francisco, Cal.—George S. Barrows is manager of the appliance department of the Wyandotte Gas Company, Kansas City, Kan., his home address being 222 West Armour Boulevard, Kansas City, Mo.—A letter recently received from Denver, Col., bears the heading "Maurice B. Biscoe and Gordon, Tracy & Swartwout, Architects, 244 Fifth Avenue, New York, and Commonwealth Building, Denver." Biscoe writes: "I expect you will be somewhat surprised to notice my new location. As you will see, I am associated with Gordon, Tracy, and Swartwout in their work out here in the West. Just now we are occupied in erecting the cathedral of 'Saint John in the Wilderness' here in Denver."—Samuel N. Braman is salesman for the Westinghouse Machine Company, of 10 Bridge Street, New York City:—Nathaniel R. Craighill is at present engaged in preliminary work for the Miami Light, Power, and Traction Company, 203 Orchard Avenue, Lebanon, Ohio.—Carleton E. Davis, recently in Panama in the employ of the Isthmian Canal Commission as engineer of water-works and sewers, has returned to this country, and is now department engineer of the Reservoir Department, Board of Water Supply, City of New York.—Samuel D. Dodge is assistant engineer with the Board of Water Supply of New York City, and is at present located at New Hamburg, N.Y.—John Church Hawley, civil engineer in the Quartermaster's Department, United States Army, is now stationed at Fort McIntosh, Laredo, Tex.—Arthur H. Jameson is superintendent of the steel castings department of the Malleable Iron Fittings Company at Branford, Conn.—George L. Mirick is engaged in real estate business at 293 Washington Street, Boston.—Henry A. Morss has recently been elected commodore of the Corinthian Yacht Club of Marblehead, he having served the club last year as vice-commodore. Of his election the Boston *Herald* said:—

Digitized by Google

The newly elected commodore, Henry A. Morss, is well known in yachting. He began sailing yachts when a boy, and by constant practice has developed into a well-seasoned amateur. He raced the "Cossack" around Nantucket Shoals Lightship, and has taken part in local racing for years. He is well fitted to be the head of this popular club.

In the sixteen years that he has been connected with yachting Morss has come to be recognized as one of the most progressive yachtsmen on this coast. He joined the Corinthian Yacht Club in 1890, the Eastern Yacht Club in 1897, and the Boston Yacht Club in 1902, when the old Burgess Club of Marblehead, of which he was a member, was merged with the Boston. Morss's standing in American yachting circles is shown by the fact that he was one of the two Americans selected to represent this country at the international conference of yachtsmen in London last January; but at the last moment it was decided that American yachting interests should not be represented at this conference, so Morss remained at home. In addition to active work in the Corinthian Club, Morss has served for two years on special committees of the Eastern Club to arrange ocean races, and he is now on a committee to revise that club's fleet routine. He has owned three well-known boats which have been noted for their smart upkeep and good handling. His first boat was the 21-foot knock about "Aspenet," which was followed in 1900 by the 25-footer "Brigand," and she in 1902 by the fast 35-foot waterline cruiser "Cossack." The latter will be retired this year by a new schooner yawl which he is having built at Lawley's from Clinton H. Crane's design. This new flagship of the Corinthian fleet will be called "The Dervish," and will be 85 feet over all, 55 feet waterline, 18 feet beam, and 10 feet 6 inches draught. Commodore Morss has raced all his boats with spirit. He is an enthusiastic deep-water sailor, a navigator, and a good disciplinarian aboard a racing yacht.—A detailed account of the Belle Fourche irrigation works, South Dakota, is to be found in an article by Walter W. Patch, published in *Engineering News* of Feb. 22, 1906. Patch, as engineer in the United States Reclamation Service, has charge of the design and construction of a considerable part of this important undertaking,

Digitized by Google

and mention of his work was made in the January number of the REVIEW.—The present address of Edward A. Porter is R. D. No. 2, Hubbard, Ore.—Professor Charles M. Spofford, of the Brooklyn Polytechnic Institute, read a paper on structural steel making, in January, before the Brooklyn Engineers' Club.—Walter I. Swanton has a young daughter, born March 15.—The following account of the remarkable work of Cadwallader Lincoln Washburn, who was with the class for a time as a special student in architecture, appeared in the New York *Herald* of March 18:—

There is now being exhibited in the galleries of A. C. Frederichs, in West Fifty-seventh Street, a collection of paintings and etchings, the interest in the intrinsic merits of which, on the part of the art connoisseur, is rivalled only by the even greater interest in the personality of the artist.

His name is Cadwallader L. Washburn, the scion of an old and well-known family, and a wealthy young man to boot. But up in the Sixty-seventh Street studios, where he etches and paints from daylight to dark, they call him the "Silent Artist." No one in all that busy artists' beehive works so passionately or so unceasingly as he. From the time the winter's light has crept up from the Park slopes on the east and grown strong enough to peer through his ground-glass skylight until the moment the last lingering ray has failed at evenfall Cadwallader Washburn has sat at his easel or his etching board, with never a sound to break the stillness save the plushing of his damp brushes upon the canvas or the delicate scratching of his etcher's point.

And yet the stillness that pervades his studio is not disturbed for Cadwallader Washburn by even such gentle sounds as these. A deaf-mute since the age of three, the "Silent Artist" knows no sound save the spirit voices of the men or women whom he idealizes upon canvas or shadows forth in tender outline from the surface of a mere bit of copper.

And yet, in spite of his affliction, there is probably no artist in all that life-loving and life-living profession who lives a fuller life, or one filled with a greater variety of enjoyment, than does Mr. Washburn. When his work-day is over, he diverts himself with society. Since his early childhood he has been an indefatigable traveller. He has been everywhere, all over Europe a score of times, to the Orient, across the Himalayas, and down into the heart of Africa. And always he has been on the lookout for material, the very essence of which he is now presenting in his first public exhibit in this country.

Digitized by Google

Since he was a very small boy, the "Silent Artist" has been devoted to his work. His first training he received at the Massachusetts Institute of Technology, where he perfected himself in the principles of architecture. Later he became a pupil of William M. Chase here in New York, and from Chase's hands he went to Spain to learn what he could from Joakim Sorolla, and then to France, to become at last the pupil of Albert Besnard, and after Besnard to exhibit annually in a long series of brilliant Paris salons, extending from the year 1896 until 1904 without intermission.

How can a man deprived of the sense of hearing and denied the power of vocal expression master the difficulties incident to learning the technique of an art which essentially requires an almost incalculable amount of individual instruction, and which is of all arts the one that can be best perfected by the wise and judicious criticism of other artists? The answer to this question constitutes one of the principal factors which argue for Cadwallader Washburn's genius. Work, an almost superhuman amount of work, is implied in that answer; for no eager art student has ever benefited more by exchange of ideas with his fellows or from the golden grain of counsel let fall in chance moments by his teachers and masters than has the deaf-mute artist, Cadwallader Washburn.

Always Mr. Washburn has been the life of his coterie of fellow-students, nor did he ever so much as miss the normal senses of speech and hearing. By written word he has been able to keep in the closest communion with the spirit of any and all occasions. In a deft, quick hand he transfers his remarks and inquiries, his theories and his jests, upon the small writing pad that is always in his hand, and his inalienable amanuensis and secretary just as quickly transcribes for him the crossfire of conversation going on around him.

Being asked if he had not found the absence of speech and hearing a serious handicap to the pursuit of art, Mr. Washburn is quoted as saying:—

"Yes and no. Never having known the advantages of speech and hearing I am equally ignorant of their necessity, and I am not conscious, consequently, of any handicap existing. Besides that, I believe that I am more than compensated for their loss by a greater acuteness of my other senses. Sight and touch being my only artistic instruments, I have been compelled to develop them beyond what might have otherwise been the case. I have been obliged, in other words, to make them each do double duty, and I fancy that

Digitized by Google

my hand is a surer hand and my vision a more precise instrument than they would be, had I the power to hear and speak. And certainly my theory is not at variance with the observations of biological science, which teaches us most unforgettably the law of compensation. At least it has been a comfort, and I may say something of an inspiration, to me to believe that, because Nature has deprived me of two of my senses, she was likely to expect me to make more than a normal use of those she did mete me out."

1895.

WILLIAM T. HALL, *Sec.*, Mass. Inst. of Technology, Boston.

François E. Matthes writes from California as follows:—

It may be somewhat of a surprise to my friends to find that, notwithstanding the announcement made in the REVIEW of my coming to the Institute this winter, I am, after all, out here on the other edge of the continent. However, life with the Geological Survey is full of uncertainties. It seems almost useless to do any planning. Also, to confess it, I am still enough of a nomad to enjoy that sort of an existence.

The new survey of the Yosemite Valley, which I took up last summer, did not progress as fast as was anticipated, the main impediment being the dense smoke from neighboring forest fires. These continued to smoulder along for nearly five months, from June until the end of November, in spite of the efforts of the military patrols of the Yosemite National Park. The snow-storm that finally put them out, put me and my crew out, too. We beat a hasty retreat to Merced, reaching the great, balmy valley of California just in time to avoid a second and much severer storm, which, I am told, smothered the Yosemite under some four feet of snow,—enough to have kept my outfit from getting out of the Sierras this winter. In the mean while the new Yosemite Special Sheet is only partly finished, and I am at the Sacramento office of the Survey this winter until spring returns and enables me to resume my work in the mountains.

I do not recall a more enjoyable summer than the one I spent clambering around in the Yosemite Valley. The weather remained immaculate for months at a time, making camp life a real pleasure. No wonder that Californians delight in camping trips! Half the State lives under canvas every summer, and they certainly know how to go about it. Just the same, I noticed that my survey camp, with its many conveniences and pseudo-mil-

Digitized by Google

itary aspect, was a good deal of a revelation. With most people, living in camp means wallowing in dirt. But a topographer, you see, is primarily a man with clean hands. He has to keep the same piece of paper going for the better part of two years, and the more he rubs it, the quicker it collects dirt again.

Beside the Grand Canyon of the Colorado, the Yosemite is an insignificant gorge. Many of the valleys I have mapped in the Montana Rockies easily surpass it in grandeur and coloring, but nowhere have I found a more fascinating and romantic spot, with so many superlatives within so small a compass. All good Americans should make a pilgrimage to it before they die.

—A. D. Fuller, who is treasurer and manager of the Andrew D. Fuller Company, writes:—

My entire time is occupied in looking after contracting work. We do all kinds of work excepting the superstructure of buildings. Most of it is for private parties, and comprises earthwork, excavation, grading, cellars, foundations, roads, dams, bridges, and, in short, anything requiring the handling of earth, masonry, rock, concrete, or water. For our Southern work we have an office in Greensboro, N.C., where C. A. Sawyer, Jr., '02, is resident manager. In regard to the Technology Fund, '95 has shown a creditable response; but it would be more satisfactory if every member subscribed something, no matter how little, thus indicating in a substantial way to the Corporation that he is interested in the support of the Institute, and that he appreciates the act of the Corporation in requesting the participation of the alumni in the administration of the affairs of Technology.

—R. W. Carr (Course III.) states that he is "making a living and enjoying life. A boy arrived at our house three months ago, and, not being able to think of a better man, I named him after—Yours truly."—A. E. Zapf, who is business manager of the *Technical World Magazine*, writes:—

The magazine is not everything that I would have it, but it is a slow and thankless task to educate the world, and, when you are doing it to the tune of about $8,000 a month, as the magazine costs, some ideals have to be set aside for sordid money to meet bills. We have 100,000 circulation, and the magazine is just a little over two years old. This shows that there is a

Digitized by Google

real interest and demand for the kind of thing we are trying to do, but a magazine, to be successful, must have at least 150,000 circulation; and, to get this amount of circulation, it must be popular, and this is what we are aiming to make of the magazine,—a popular magazine with a technical turn, something for the man who likes to know "how" and "why" things are done and to get the information without working too hard for it. Send along your suggestions just as soon and just as freely as you can. We are going to have a great annual Tech dinner here February 24, and Harry Tyler is going to come on and speak to us.

—W. C. Marmon, of Indianapolis, who will be remembered as an active member of Course II. and a man who did a great deal in bicycle track events when at Tech, is now engaged in the manufacture of automobiles. Marmon spent the week of the auto show in exhibiting his car in New York.—W. S. Williams recently read a paper before the New England Section of the Society of Chemical Industry on "Antimony Compounds as Fixing Agents for Tannic Acid."—D. B. Weston is again at Trinidad, Cuba, in charge of a sugar house there.—The "Decennial Catalog," which was published in December, shows very plainly that the secretary has very little information with regard to many of the men. He would be grateful to any one who will call his attention to omissions and corrections. The following men have contributed towards the expense of publishing the book, whose names were omitted from the acknowledgment at the beginning of the book: Richard Morey, F. W. Fuller, C. H. Parker, R. K. Sheppard, H. M. Tucker, and C. F. Tillinghast. The Presbyterians were left out of the list of religious affiliations.—Dwight N. Marble died Sept. 8, 1900. His name was omitted from the catalogue.—By an oversight, half of F. A. Hannah's history was omitted. He was with the American Tobacco Company from 1900–01, consulting engineer in New York from 1901–02, and with the Crosby Steam Gage and Valve Company to date. He is a member of the First Corps of Cadets, M.V.M. (since January, 1904), and of the American Society of Mechanical Engineers, the Technology Club, and the New England Railroad Club. He is "single, but hopeful," and a "Republican, generally." Since the above was received, the REVIEW received from Mr. Hannah the following ad-

Digitized by Google

dress: Care of Stephen T. Williams & Staff, 346 Broadway, New York, N.Y.

1896

EDWARD S. MANSFIELD, *Sec.*, 70 State Street, Boston

The committee appointed at the last annual meeting in June to arrange for the decennial celebration of the class has had several meetings; and arrangements have progressed to such a stage that they can report with a reasonable degree of certainty that the event will take place at Ipswich, near Plum Island, where plenty of room and ample accommodations will be provided to accommodate all who are able to attend, from Friday afternoon, June 1, to and including Monday, June 4. Committees have been appointed to provide entertainment, and arrangements will be made to accommodate all who wish to attend for the whole time or for a single day, at a comparatively low figure. More definite information will be sent out in due season, and the committee urges all men connected with '96 to plan to spend at least a part of this period at the celebration headquarters.—The engagement is announced of Benjamin Hurd, of New York, to Miss Anne Elizabeth Mayer, of Norfolk, Va.—Word has been received that a new candidate for the class of M. I. T., 1930, arrived in the home of E. C. Jacobs, of Burlington, Vt., on March 22.—E. C. Atkins, of Providence, R.I., who holds a position with the Builders' Iron Foundry of that city, was in Boston about the middle of March, visiting friends. —M. L. Fuller, of the United States Geological Survey, will give a course of lectures in April at the University of Chicago, on the hydrologic work of the government.—Stewart S. Bell, formerly superintendent of the municipal light plant in Reading, Mass., has associated himself with the Western Electric Company, as their agent in Massachusetts.—Mr. Charles K. B. Nevin, formerly with Allin & Collins, announces that he has opened an office for the practice of architecture at 6 Beacon Street, Boston, Mass.—E. H. Laws, of Globe, Ariz., spent his vacation of about two weeks in and around Boston during the month of February.—W. D. Coolidge,

Digitized by Google

until recently Associate Professor in Physical Chemistry at the Institute, has accepted a position with the General Electric Company at Schenectady, N.Y., and is now engaged in engineering and research work.—A. J. Bowie, Jr., formerly electrical engineer with the Northern California Power Company, has accepted the position of irrigation engineer in the United States Department of Agriculture, with headquarters at Washington, D.C.—H. P. Browne has given up his business of production of crude oil in Houston, Tex., and is now with the New York Transportation Company, in the capacity of assistant engineer.—J. L. Coley is now foreman of the United States Rapid Fire Gun and Power Company of Shelton, Conn.—Henry Cummings, Jr., formerly contracting agent of the American Bridge Company, is now the secretary of the Fosburgh Company of Boston.—William T. Dorrance has left Westinghouse, Church, Kerr & Co., and has become assistant engineer with the New York Central & Hudson River Railroad, with headquarters in New York City.—A. L. Drum has left the Indiana Union Traction Company, and has become general manager of the Chicago & Milwaukee Electric Railway.—Henry Gardner has associated himself with the H. K. Porter Company, Forty-ninth Street, Pittsburg, Pa.—Alf C. Lootz holds the position of superintendent of construction with Holbrook, Cabot & Rollins Corporation, Beacon Street, Boston, Mass.—W. H. McAlpine was married to Miss Mary Dudley Gray of Frankfort, Ky., on March 3. After an extended trip through Washington, New York, Boston, and Lawrence, they have taken up their residence in Frankfort.

1897

JOHN A. COLLINS, JR., 74 Saunders Street, Lawrence, Mass.

James W. Smith has been made superintendent at the Trenton Iron Company, Trenton, N.J. Since leaving the Institute, he has been successively assistant to chief engineer and master mechanic at the Worcester plant of the American Wire and Steel Company, and later assistant superintendent and finally superintendent at the

Digitized by Google

Trenton plant.—A second assistant secretary has appeared in the person of John Oliver Collins, born Nov. 11, 1905. It is possible that with his help the secretary will be able to issue the long-promised Class Book. A circular will be sent to members shortly, calling for an assessment, the second since graduation. This is rendered necessary for several reasons. It was found that there were not sufficient funds by a considerable amount in the treasury to pay for the book issue. Also, there is an assessment of twenty cents per graduate that has been due to the Association of Class Secretaries some time, and which must be paid. There will be a reunion and dinner held at Commencement this year, but for which it is too early to give further notice.—The alumni of the Lowell Textile School who are located in or around New York City held a reunion and banquet there recently. The Textile School was represented by Charles H. Eames, Tech. '97, who is the secretary.—At the annual meeting and dinner of the Technology Club of the Merrimack Valley held in Lawrence on February 2 three '97 men were present, P. M. Smith, Eames, and Collins.

1898

PROF. C.-E. A. WINSLOW, *Sec.*, Hotel Oxford, Boston.

The second informal meeting of the class of '98 was held at the Bürger Brauhaus, on the evening of February 2, with the following members present: Treat, Coburn, Wing, Norton, Perry, Hubbard, Edgerley, Blanchard, Ayres, Godfrey, Winslow, Dawes, Curtis, Butcher, Bennink, Danforth, Richmond, and Putnam. H. T. Williams, '06, very kindly furnished music.—Edgerley has returned to Boston to take charge of the New England Department of the Chilton Paint Company.—Curtis has opened an office as counsellor-at-law at 161 Devonshire Street, Boston.—Gardner is now advertising manager of the *Twentieth Century*, a monthly magazine, of which John Brisben Walker is editor.—Mark E. Taylor is located at the Frankford Arsenal, Philadelphia.

Digitized by Google

1899.

MILES S. SHERRILL, *Sec.*, Mass. Inst. of Technology, Boston.

Word comes from Harry Babcock that he is still living in Neenah, Wis., and is still numbered among the few of us who are enjoying single-blessedness.—Ed Bergstrom is in California. He has a charming little daughter, and is doing well in the architectural line. —Arthur L. Hamilton surprised his friends in Boston by calling on them on the first of March. He had just come on with his wife and son from Fairbanks, Alaska, where he is interested in various propositions. He brings glowing reports with him of the life in that country. He has been there for over two years, and intends to return in the early fall.—Harry G. Johnson is now located in Bridgeport, Conn., with the Union Metallic Cartridge Company. He reports that there are several Tech men there, as well as graduates of other leading colleges, which makes Bridgeport much more interesting than it would otherwise be.—J. A. Patch writes interesting accounts of his life in the Orient. He has been teaching chemistry at the Syrian Protestant College of Beirût, Syria, for the last six years, having visited America only once in that time. He was married last year, and has his home in a pleasant little villa at Beirût, called "West Point." He has spent most of his vacations in taking trips into the surrounding country, so full of interest both historically and scenically. His wedding journey was to Damascus, and during the summer holidays of last year he and his wife were encamped among the famous cedars of Lebanon, far from civilization. He writes,—

> Our servant had to get up at three o'clock every morning and climb down the mountain about 2,000 feet to the nearest village to get our milk, water and food supplies for the day.

Patch has lately been made happy by the arrival of his first-born, a son, Ralph Douglas Patch.—E. S. Phelps is also to be congratulated on the advent of his second daughter, Eleanor Frances.—C. Gardiner Barry is at present in the resident engineer's office of

Digitized by Google

the N. Y. C. & H. R. R.R., New York City.—Arthur H. Brown, who was formerly located in Washington, D.C., has returned to his native heath, and is now a member of the firm of Bright, Brown & Quinby, patents and patent causes, 53 State Street, Boston. He is looking forward to a renewal of old acquaintances at the June reunion.—William L. Morris, formerly examiner in the United States Patent Office, has recently established an office for himself at 902 F Street, Washington, D.C., as attorney and counsellor-at-law in patents, trade-marks, and copyrights.—William C. Phalen, of the Geological Survey, has returned to Washington.

1900.

RICHARD WASTCOAT, *Sec.*, Dedham, Mass.

Five members showed up at the annual meeting and dinner of the Alumni Association on December 29, namely: Maxfield, II., I. Osgood, II., Russell, I., Southworth, IV., and Wastcoat, I. A very pleasant evening was spent, the only drawback being the small number present. Increasing family cares probably account for it, even if three out of the five present were married men. And, judging from the specimens present, they appear to be standing "the trials of life" better than the bachelors, for Southworth is following in the steps of "John D.," and Wastcoat is getting gray.—Maxfield was married last April, and is keeping house in Dorchester. He is in charge of one of the departments at the Sturtevant plant at Hyde Park.—Osgood joined the ranks of the married men last June, and has a position at the power plant of Lawrence Gas and Electric Light Station.—Russell is married, and has one child, a boy, and lives in Boston. He is instructor at the Institute in hydraulics. —Southworth, after graduating, was in the employ of a number of architectural firms in Boston, his last position being with Shepley, Rutan & Coolidge. Two years ago he passed the examinations for inspector of the new buildings being erected at the Naval Academy at Annapolis, where he is now located. Southworth made a trip up this way to his home in Stoughton over Christmas, which

Digitized by Google

enabled him to take in the dinner.—Stratton, IV., is also an inspector on these buildings, having passed the same examinations.—N. T. Neill, VI., has severed his connection with the Westinghouse people in Pittsburg, where he has been located since graduation. While with the Westinghouse people, he made a special study of lightning arresters, and has written several articles in connection with this subject.—J. S. Burns, I., who has been located in Salem, has now a position in the engineering department of the Boston Elevated.—L. S. Keith, VI., was in Boston last month on inspection work connected with telephone switchboard installations. He is an expert in this line, and has been connected with the New York Telephone Company since graduation.—C. Corliss, VI., has recently been promoted assistant to the chief engineer of the Boston Elevated. Corliss started in in the electrical department, and has advanced step by step to his present position.—F. D. Chase, I., who has been chief draughtsman of the Minneapolis & St. Louis R.R., and had headquarters in Minneapolis, is now located in Chicago, being connected with the Leonard-Martin Construction Company, 802 Monadnock Building, who are general contractors for warehouses, manufacturing plants, etc. Chase writes that he is very busy, as they have a lot of work on hand and are figuring on more.—Billy Hough, II., has an office in the same building as Chase in Chicago, and is established as W. B. Hough & Co., selling Ransome concrete materials, such as bars, mixers, etc.—C. T. Leeds, IV., who entered West Point at the beginning of the fourth year, is now a lieutenant in the Engineering Corps of the army. The present year he is on leave of absence, and is at the Institute taking the fourth-year studies in the course in civil engineering.—The secretary ran across Billy Stone while on a trip to his home in Taunton last Christmas, and dunned him for news, with the result that he received the following interesting letter:—

Dear Dick,—I received your letter dunning me for some news about the fellows, and will gladly give what little I have.

Searle, I., has complete charge of the engineering for converting the West Shore Railroad from Utica to Syracuse from a steam railroad into an elec-

Digitized by Google

tric one. Power for this road will be obtained from Niagara, consisting of 600,000 volts.

A. C. Redman, I., for the past three years has been working for the United States Reclamation Service. The first year of his service he had charge of putting in a water-works system and building a jail in Anadarka, Okla., and for the last two years has had charge of building 100 miles of irrigation canal in an alkaline desert of Nevada. He misses the salt-water baths he used to take on the coast of Maine, but probably Instructor Russell's thoughts often wander into that State, even if Marion, Mass., is nearer. (All Course I. men who went on the '99 summer school have tender thoughts of the State of Maine.)

Mayhew, I., the 1900 sprinter, has been doing hydrographic surveying along the West Indies for the last two years, and at present is stationed at the Portsmouth Navy Yard, New Hampshire.

The long fellow of the class has been in charge of road construction during the summer season and road surveys during the winter since 1902. Fifty million will be expended by New York State for good roads during the next few years. (Billy says he hopes to be a millionaire some day.)

The training that one gets in Technology comes into use often in this field of engineering. But much judgment must be used to determine the most suitable and economical foundations for roads. The writer has encountered springs in the seams of ledge rock which must be drained before the macadam can be placed, built roads through cat-tail swamps where 1,500 piles were used for culvert foundations within a stretch of one-half mile, and has also constructed roads through deep quicksands of varying density, where piles could be used in some places and boulders in others for a foundation for the stone. Where the property fences have encroached on the highway, I have forced the fence back to the street line, and have been challenged to fight the abutters. I know personally one engineer who was ordered back from making a survey at the point of a rifle, so am beginning to think, if one stays in the business long enough, Captain Bigelow's Geometry of Strategy might be of advantage.

In cross-sectioning roads in the winter, have run across snow drifts 10 feet deep, when it was necessary to dig a hole 5 feet in depth large enough for one man, and then dig 5 feet more to reach the ground level. Again, at other places where the snow was 10 feet deep, the road could be cross-sectioned easier by aid of a tunnel through the snow drift. The temperature at such times was frequently below zero, and some think that it is "cruelty to animals" to make them work there.

Digitized by Google

This letter must be getting dry and cold, and will get you to address all letters as below. Hastily,

W. W. STONE,
Nelsonville, Putnam Co., N.Y.

P.S.—Now the "Doctor" is married, I sincerely hope that he will not get "too gay."

—The sympathy of the class will go out to Mr. and Mrs. Arthur Burr White in the recent loss of their young daughter, Muriel, who died Feb. 28, 1906, aged ten months and fifteen days. Several months ago she suffered from whooping-cough, which left her in a weakened condition, pneumonia finally setting in and resulting in her death. White is city engineer of Corona, Cal., and has an office at Riverside.—Russell Suter has left the Philippines and returned to the States. His address for the present is care of Col. C. R. Suter, Army Building, Whitehall Street, New York.—Dr. John W. Brown, V., instructor in theoretical chemistry, has accepted a position with the National Carbon Company, Cleveland, Ohio, as head of their research department.

1902

CHARLES W. KELLOGG, JR., *Sec.*, El Paso, Tex.

El Paso seems to be so far from the Institute that hardly any news from members of his class has percolated through to the secretary during the last quarter. He takes this opportunity of reminding any members of the class who may read these notes that he would be very glad to hear from them. During a recent visit to Dallas he met Randall, who is working for the Dallas Consolidated Electric Street Railway, and who seems to be the only other 1902 man in the State.—L. C. Hammond is now resident engineer of the Construction Department of the Big Four Railroad at Miamisburg, Ohio.—F. H. Reed has become assistant editor of the *American Telephone Journal*.—Hervey has left the General Electric Company, and joined the Stanley G. I. Electric Manufacturing Company. His office is at 1543 Monadnock Building, Chicago,

Digitized by Google

Ill.—It is a sad duty to announce the death of Conrad Wendel, who was killed by the Twentieth Century Limited of the New York Central Railroad at Poughkeepsie, N.Y., on Dec. 27, 1905.—Carleton B. Allen of New York was married March 24 to Miss Marie Rose Schwenter of Thun, Switzerland. They will be at home after June 1 at 30 Colonial Place, New Rochelle, N.Y.

1903

WALTER H. ADAMS, *Sec.*, Polytechnic Institute, Brooklyn, N.Y.

The secretary has been busy since January preparing the class register. A number of letters came in too late to be published, and the corrections will be published in the July number of the REVIEW. Some more members of the class have renounced the jolly bachelor life, and are trying double harness. Bartlett was married to Miss Alice Julia Farnham on Sept. 22, 1905.—Cushman was married to Miss Ivah J. Richardson on Oct. 4, 1905.—Doran was married to Miss Sara Cecilia McNiff on Sept. 19, 1905.—Gilker was married to Miss M. B. Jackson, of Pawtucket, R.I., on June 15, 1905.—Hickok was married to Miss Jessie E. Stevens on June 28, 1905.—Ricker was married to Miss Annie Henderson Graham on April 12, 1904, and Sibbett was married to Miss Mary L. Harding on Sept. 22, 1904.—The class baby has appeared, and at this writing seems to be George Ewing Sibbett, Jr., who was born June 22, 1905.—Some other members of the class are proud fathers. Carlisle has a little boy; Ferris, a little girl; Gleason, a boy; Ricker, a girl; and Whitehead, a girl.—Whitehead has gone into business for himself under the name of C. Whitehead & Co., and is manufacturing chemical colorings.—Regan received his A.M. at Harvard in 1904, after studying mathematics a year.—Doran writes that he was in Europe from March to September of last year, visiting England, Wales, Isle of Man, Belgium, and France. The trip was a business one, as he introduced his hat machines there.—You mustn't say "labor union" to Hewitt Crosby. At present he is foreman for a firm of New York contractors who are trying to break

Digitized by Google

a strike. He says he prefers to stay in the house nights, as the night air might be too penetrating.—It is my sad duty to record the death of another classmate: Stanley Lester Porter, of Middleboro, died on Nov. 1, 1905, of tuberculosis. He will be remembered by the members of Course XIII.

1904.

CURRIER LANG, *Sec.*, Michigan Central Depot, Detroit, Mich.

Since the last issue of the REVIEW, the secretary has been enabled to discover in his native haunts the only and original member of M. I. T. '04, in South Africa, and to wring from him, at great risk to life and limb, the following account of his doings:—

JOHANNESBURG, Jan. 19, 1906.

I have been out here now about four months, getting here the middle of September. I had a swell trip down here on the steamer. I tell you, it is a good deal better to travel first-class and have everything done for you than it is to travel on a fruit steamer, and sling oil for your living.

Much to my surprise and that of all my friends, I graduated last June from M. I. T., and at once accepted this position. Before coming here, I spent six weeks in New Jersey with the Manhattan Rubber Company, Robins Belt Conveying Company, and with the New York Lubricating Oil Company. Then I lit out for the unknown. I came first to England, and from England to Cape Town, and thence to Johannesburg by rail, the whole trip being a little over 10,000 miles.

My first impression of Jo—burg was that it was the dustiest place I had ever seen, and that first impression still holds good. The Main Reef runs right through the city, and stretches out about 30 miles on each side. The winds out here get a hold of the waste dumps, and scatter them gently over the whole city. It is not so bad now in the summer, for it is the rainy season; but, when the dry season comes, it is fierce.

The firm with whom I am employed is Frazer & Chalmers, and they are probably the largest firm in South Africa dealing with mining supplies. Mr. B. M. Mitchell, who is the assistant manager, graduated from Tech in 1893. Mr. Park, the manager, is also an American. There are a great many Americans here, the greater proportion of the consulting engineers and mine managers coming from the States. I went to an American college dinner

Digitized by Google

about a month ago, and there were twenty-seven different colleges represented.

My work at present is mostly in connection with lubricating oils and belting, packing, etc. I am out on the Reef, visiting the different mines, etc., almost every day. In order for me to get around quickly, the firm have bought me a large motor cycle on which I expect to break my neck sooner or later. I find my work very interesting and not in the least tiresome. After I have been out here a year, it will be better than ever, as it will be more varied.

There is one thing about this country which I am not struck on, and that is the price of everything. Eggs cost $1 a dozen. You can't get decent board under $50 a month, and a small room costs $20–$25 a month. Clothes cost the same as in the States.

Most of the get-rich-quick schemes out here consist in buying shares, and then selling them for about one-half what you paid for them. None of that for me.

If any of this is printed, kindly send me a copy, as it will be the first novel I have ever had published. As ever,

J. A. Pitts.

—The following personal notes concern members of the class: F. M. Pierce and A. M. Deane are both with the Penn Bridge Company at Beaver Falls, Pa., Pierce having left the Atlas Engine Company of Indianapolis, and Deane having left the Central States Bridge Company of the same place. Deane is thinking seriously of returning to Tech in September to finish his course.—A. W. O'Connor is with the American Bridge Company in Trenton, N.J. —Lee Phillips has left Francis Bros. & Jellett, Inc., of Philadelphia, and gone with French & Hubbard, consulting engineers, Boston. —J. L. Hecht reports that a son was born to him on Dec. 15, 1905, and wishes to know if he is the winner of the loving-cup that the class promised to award to its first-born son. This is a matter to be dealt with at the time of the annual dinner and meeting, and due notice will be given to applicants for the honor, and the conditions of the race will be made known.—H. E. Thompson was married on Tuesday, November 21, to Miss Mabel Anne Tracy at South Coventry, Conn.—H. A. Whitney, after graduation, went directly to Portland, Ore., and took charge of the draughting office of the

Digitized by Google

Lewis and Clark Fair Commission. This work ended last August, and since that time Whitney has had charge of the office of Whidden & Lewis, architects, of Portland. The following extract is from an account in the Portland *Evening Telegram* of October 14:—

Miss Mary Paulus, only daughter of Mrs. Mary A. Paulus, was married Tuesday evening, October 10, at eight o'clock to Harrison A. Whitney at the residence of the bride's mother. The simple ring ceremony was performed by Rev. J. Whitcomb Broughton, D.D., pastor of the First Baptist Church. Only relatives were present, and there were no attendants. The decorations in green and white were exquisite. They consisted of white carnations and Oregon grape, and the bay window, where the bridal party stood, was decorated with white mull. The bride was very beautiful in a gown of crêpe de Paris over white taffeta. Her veil was festooned with orange blossoms. From 8.30 to 9.30 a reception was held, which was largely attended. The bride is a favorite in social and musical circles, and she has been a valued member of the choir of the White Temple. The groom, a prominent young business man, is a graduate of the Boston School of Technology. Mr. and Mrs. Whitney will reside at 1203 E 9th Street, where they will be at home after November 15.

—F. S. Anderson is with the Kelsey Gold and Silver Mining Company at Placerville, El Dorado County, Cal., a town of 2,400 inhabitants, at an elevation of 1,900 feet. Anderson is growing up with the town, although he was about six feet three when he left Tech.—A. D. Smith is employed by the Standard Oil Company at Bayonne, N.J. He is in charge of the laboratory, and is foreman of the Inspection Department, which controls the quality of the finished oil.—The secretary has left the Pittsburg district and the employ of the Pennsylvania Lines, and gone to Detroit, Mich., to assist in the construction of the Michigan Central Railroad's tunnel under the Detroit River. This is a two-track tunnel, and, including the approach tunnels under the land, is about 12,000 feet long, and will probably require three or four years to build.—H. A. Hill has left the Pennsylvania Lines, and gone to work on the construction of the city of Pittsburgh's filtration plant at Aspinwall, Pa.—The other '04 men doing engineering work on this large un-

Digitized by Google

dertaking are Holbrook, Thurlow, French, and Lehr.—Goddard left it a short time ago, and now has a card, Herbert W. Goddard, Construction Engineer, 37 West 34th Street, New York.—R. V. Collins has left the Pennsylvania Lines, and gone to the Pennsylvania Railroad to do maintenance work at Mifflin, Pa.—H. G. Chapin has left the electrification work of the New York Central, and is now with the Mexican Central Railroad.—F. F. Longley is superintendent of the filtration plant at Washington, D.C.—It is reported that A. P. Weymouth and a party were recently making a preliminary survey through the field of a farmer who objected to their presence. Remonstrances by the farmer didn't seem to help him much, and so, scorning to apply to the law for aid, he turned his ram loose in the disputed territory. This was the most effective argument yet advanced, and the surveying party finished the day on the fence, trying to insult the ram. No loss of life.—There is a considerable colony of '04 chemists at and near Perth Amboy, N.J. Marston, Gallup, Baum, and Skowronski are all employed in practically the same room of the American Smelting and Refining Company. When the flame of Tech spirit burns a little low, these four and Geist, '05, gather at Marston's home, and jolly up around the piano with "Take me back to Tech" and all the rest. Marston has been married since last September. Within fifteen miles of Perth Amboy are Smith, Regestein, and Crane, three more chemists.—The good volume of class news this time is largely due to the fact that five members of the class took the trouble to write a letter each to the secretary, telling what they knew. This good example deserves imitation. Before another issue of the REVIEW, our annual meeting and dinner will have taken place, together with the Commencement festivities. Notice of the arrangements for this affair, and a call for suggestions as to the best use of the class funds, will be given in a letter which will be sent to all members of the class; that is, all signers of membership cards. The total number is now two hundred and ten. There are several ways of using the class money. It might all be saved for the five-year reunions, it might be devoted to some special student enterprise with which '04 might identify itself and act as a sort of god-father, or something

Digitized by Google

else might be done with it. Suggestions will be called for and discussed at the annual meeting.

1905.

ROBERT H. W. LORD, *Sec.*, 248 Tremont Street, Newton, Mass.

At the annual banquet of the Alumni Association on Friday, December 29, at the Hotel Brunswick, the class had the largest delegation present. Of the fellows having positions near Boston were present: Adams, Spaulding, Whitney, Wentworth, Charlesworth, McManus, Whitman, Gifford, Bushnell, Lyon, Tufts, Starr, and Lord; and those from away were: Bent from Rochester, Gilbert from New Haven, Kriegsman from Washington, and Marcy from Buffalo. We were also honored by having Miss Ryan present. Every one had a good time, and felt pretty big with our first vote at the business meeting.—From the fellows at the Westinghouse Electric Company in Wilkinsburg we hear that they all find their work interesting, and are profiting by their apprenticeship course. Atwood, Winship, and Manson are all rooming in the same house, Lines is a few doors below, and Babcock and Kendall are about five minutes' walk from there. One-half of the crowd are "aristocrats," the other half are "hunkeys." Atwood, Winship, and Kendall are in the engineering department, doing office work for the power railway and insulation divisions, respectively; Babcock, Lines, and Manson are in the shops, working with the men.—Robert W. McLean, II., has been elected to the Common Council of Malden, Mass.—Members of the class not having a degree may obtain blanks upon which to apply for Associate Membership of the Alumni Association from Prof. Arthur G. Robbins.—W. F. Smith's address is now 3336 Fifth Avenue, Pittsburg, Pa. He is with the Carnegie Steel Company in Pittsburg.—Henry Dean has a son and heir. Grove Marcy writes from Buffalo that Coffin and Lambie are pit foremen with the Lackawanna Steel Company, George Jones is assistant superintendent of the Merchant Mill of the Lackawanna, Charlie Dean is with the Buffalo Forge Company, and Billy Spaulding is superintendent of the electrolytic refining of

Digitized by Google

the Buffalo Works of the Calumet & Hecla. Houch, Morse, and Marcy are still located as reported in the October REVIEW. Grove says:—

The bunch has got together on several occasions at some of the fellows' rooms or at the Tech café (for sake of the name), at the theatre or even at the skating rink. Chesterman was with us for a month while investigating the long-distance telephone situation, and stirred us up to excitement and several good times. Billy Spaulding represented '05 at a luncheon given Dr. Tyler by the alumni on his visit here.

—A letter from Cowper reads:—

Dear Bob,—I am sending my pledge to you so as to drop you a line at the same time, and thus save a two-cent stamp. Your dunning letter is O. K. Send out another, and give the fellows h—l who don't ante-up. I am plugging away in the testing department of the Standard Steel Works, and like the work very much.

—It would help us out with the REVIEW news a lot if more fellows would drop us a line, as "Cowp" did, and tell us some news. If not about yourself, about some other '05 man.—Belding writes from Claremont, N.H.:—

Nearly all the fellows have gone away. As you remember, I came up here with Joe Brown and Arthur Freeman. Freeman was sent to Salt Lake City, and is out there now in the company's office. That office is run by Matt Brodie, an old 1902 man. Brown has just been sent to Chicago to the company's office there. We are all in the sales department. Charlie Smart came up here about Thanksgiving time, and has charge of the premium work. This is a dandy little town, and the company is a corker. I heard from Louis Robbe, and he has been down in West Virginia for two months for his company.

—We hear from Walker in Philadelphia:—

The first Tech man we saw was Edward Snow, who has since returned to Tech. Then came H. G. McVay, then with the Lanston Monotype Machine Company, but now with the Winthrop Press of New York City. We hunted up William Houskeeper, and not only found him, but also Wallace

Digitized by Google

MacBriar. Then Robert Morse walked in on us. He is designing a concrete asphalt plant to go on one flat car. Bill Keen is also here in Philadelphia. Ernest Calkins has had to go home, as he was very sick with typhoid fever. Next came Fred Goldthwait and Maurice Landers to take positions with the Lanston Company, and then "Big Bill" Gerry with the Baldwin Locomotive Works. On January 12 five of us attended a meeting of the Technology Club of Philadelphia, at which nineteen Tech men were present. We enjoyed meeting the older men, and passed a very pleasant evening. From the January REVIEW we located Lewis Killion, of banjo fame. We had had no general gathering, but the announcement of the '05 dinner was the signal for a general gathering, with the result which you know. After that we agreed to meet every two weeks, and with the song book and Killion at the piano we recall old times at the Union. We also took up the question of the Income Fund, and trust that you have heard from all of us. We then organized the "Society of '05 Quakers," and after due formalities Bill Keen was elected to the office of "William Penn" and Walker to that of "Fountain Penn." We would suggest that, whenever Tech men find themselves in the same city, if one will but start, the others will co-operate in any similar scheme. Try it!

City Editor, TECH REVIEW,—Here are a few items for your journal. It seems to be hard to connect with many fellows here that you have not already got. F. H. Payne, Otis Elevator Company, 17 Battery Place, New York; Elliott Lum, Telephone Engineering Department, Western Electric Company, New York; A. P. Gerry, Phœnix Engineering Company, New York; R. N. Whitcomb, with J. G. White & Co., Engineers, 94 Exchange Place, New York; H. M. Wilcox, with J. W. Ferguson Company, Paterson N.J. In haste this time.

ROS DAVIS,
New York Correspondent.

—The next '05 gathering will be at the "Pops" on June 5th. Notices will be sent out later. At the time of writing '05 has eighty-eight subscriptions to the Alumni Fund. Every one take hold, and help it along. We are still behind '04.—The first alumni dinner of our class was held at Marliave's, on Bosworth Street in Boston, on February 23, and certainly was a credit to the class. There were seventy-one of the fellows there, and every one had a

Digitized by Google

"bang-up" time. Incidentally, this was the largest class dinner of alumni ever held. One of the best features of the dinner was the large number of men who were with us one or two years, and whom we had not seen for some time, and all still red-hot for 1905.—During the dinner a letter was read from the '05 crowd in Philadelphia, saying that they were having a '05 dinner there at the same time, and just as we were breaking up a telegram came in from there, signed "Walker, Killion, Goldthwait, Landers, Eichler, Gerry, Keen," which showed the way our men hang together, and brought out the '05 yell for the Philadelphia crowd. As is the custom at the first dinner, a salary vote was taken up, which showed an average of $72 a month. Nineteen were getting $60 a month, eight were getting $100 or over, and three under $50. Mr. I. W. Litchfield, of the class of '85, and a member of the Income Fund Committee, spoke upon the purposes and progress of the fund, and, although interrupted several times by the "cuckoo" clock, made such an impression that forty-eight pledges were handed in during the evening. Mr. Litchfield said particularly that, although they wanted as large subscriptions as possible, they wanted especially something from every one, no matter how small it was. After dinner the crowd sat around, and sang and talked until about eleven. There was quite a piece about the dinner in the *Post* the next morning. ("Perk" is on the *Post* now.)—Following is a list of men who have changed their addresses since the last REVIEW was published:—

Fred H. Abbott (VI.), Houghton, Mich.
With Houghton Electric Light Company.

Roy H. Allen (III.), Santa Maria del Oro, Est. de Durango, Mexico.
With Lustre Mining Company.

Claude A. Anderson (XIII.), 11 Charles Street, Quincy, Mass.
Draughtsman.

George H. Barrows (IV.), 213 W. Newton Street, Boston, Mass.
Post-graduate Student at M. I. T.

William H. Beers, Jr. (VIII., VII.), 16 Trinity Street, Hartford, Conn.
With Henry Souther Engineering Co., 440 Capitol Avenue.

William P. Bixby (II.), 23 Grove Street, Pawtucket, R.I.
M. E. Department, Howard & Bullough, American Machine Company.

Digitized by Google

Edward M. Coffin (X.), Box 441, West Seneca, N.Y.
With Lackawanna Steel Company.
Richard V. Collins (I.), Mifflin, Pa.
Engineering Corps, M. W. P. R.R.
Charles A. Emerson, Jr. (XI.), American Building, Baltimore, Md.
Chemist and Bacteriologist with Sewerage Commission.
Luther E. Gilmore (X.), P.O. Box 671, Branford, Conn.
Fred W. Goldthwait (II.), 1835 No. Park Avenue, Philadelphia, Pa.
With Lanston Monotype Machine Company.
Carl H. Graesser (II.), Wallingford, Conn.
Economist for International Silver Company.
Thomas McC. Gunn (XIII.), P.O. Box 104, Orono, Me.
Instructor Marine Engineering, University of Maine.
Reynold M. Harding (I.), Greencastle, Ind.
With Division Engineer, Big Four Railroad.
Henry L. Hardy (I.), 414 Columbus Avenue, Boston, Mass.
With Boston & Albany R.R., Engineering Department, Boston.
Myron Helpern (V.), 39 Clinton Street, Springfield, Mass.
Chemist with Chapman Valve Company.
Edgar L. Hill (II.), Lincoln, Ill.
With American Steel & Wire Company, Worcester, Mass.
Arthur H. Howland (IV.), 105 Gates Avenue, Brooklyn, N.Y.
With Clinton & Russell, 32 Nassau Street, New York.
William H. Humphrey (IV.), 171 W. 97th Street, New York, N.Y.
With Dureen & Co., New York.
George Jason, Jr. (II., VI.), 9 Winthrop Street, South Framingham, Mass.
Night Manager, Brookline Office, New England Telephone & Telegraph Company.
Married April 21, 1905, to Olive H. Stewart, of South Framingham.
George B. Jones (II.), West Seneca, N.Y.
With Lackawanna Steel Company, Merchant Mill.
Harry C. Kendall, 216 N. Second Street, St. Louis, Mo.
With Westinghouse Electric & Manufacturing Company.
Herbert W. Kenway (XI., II.), Room 312, United States Patent Office, Washington, D.C.
4th Assistant Examiner.
Charles D. Klahr (II.), 371 West 120th Street, New York, N.Y.
Mechanical Engineer with Westinghouse, Church, Kerr & Co.
Eugen F. Kriegsman (I.), 876 Federal Building, Chicago, Ill.
United States Geological Survey, Hydrographic Aid.

Digitized by Google

Maurice B. Landers (II.), 601 North 18th Street, Philadelphia, Pa.
With Monotype Company.
Harry M. Lynde (I.), 135 William Street, New York, N.Y.
Corps of Engineers, Commission of 20, National Board Fire Underwriters.
Ralph H. Nesmith (XIII.), 4808 Chester Avenue, Philadelphia, Pa.
Navy Yard, Pa.
Galt F. Parsons (VI.), 94 St. Botolph Street, Boston, Mass.
Student M. I. T.
Harry S. Percival (VI.), 349 Columbus Avenue, Boston, Mass.
Student M. I. T.
George W. Perry (XIII.), P.O. Box 133, Ashland, Mass.
With Lombard Water Wheel Governor Company.
Grafton B. Perkins (V.), 203 Lafayette Street, Salem, Mass.
Advertising solicitor, Boston *Post*.
Waldemar S. Richmond (I.), Mt. Carmel, Ill.
Civil Engineer with Widell, Finley Company.
Arthur E. Russell (XIII.), 97 Oak Street, Bath, Me.
Draughtsman, Engineer Department, Bath Iron Works.
Richard W. Senger (III.), Cananea, Sonora, Mex.
Chemist with Greene Consolidated Copper Company.
William F. Smart (IV.), 3441 Forbes Street, Pittsburg, Pa.
With Carnegie Steel Company.
Forest O. Sprague (V.), 78 Central Avenue, Everett, Mass.
Chemist with New England Gas & Coke Company.
Harry W. Upham (IX.), 10 Blackstone Street, Worcester, Mass.
Travelling Representative for Simplex Piano Player Company.
Herbert M. Wilcox (X.), 115 Paulison Avenue, Passaic, N.J.
With J. W. Ferguson Company, Contracting Engineers, Paterson.
Bartolette A. Yoder (I.), North Platte, Neb.
With Union Pacific R.R.

We give here a list of men whose address and occupations have been found for the first time:—

Arthur H. Abbott (VI.), 184 South Common Street, Lynn, Mass.
Joseph C. Baker (II.), 25 Cumberland Street, Boston, Mass.
Draughtsman with B. F. Sturtevant & Co., Hyde Park.

Digitized by Google

Joseph H. Bakewell (II.), Pittsburg, Pa.
Clerk in Sales Department, Crucible Steel Company.
Edward T. Barron (III.), 1152 Murray Hill Avenue, Pittsburg, Pa.
Steel and Cement Inspector, Duquesne Steel Works, Duquesne, Pa.
Allan H. Barrows (V.), Washington, D.C.
Assistant Examiner, United States Patent Office.
Edward H. Bartlett (X.), Delawanna, N.J.
Chemist with Waldrich Bleachery.
George M. Bartlett (V.), 63 Kenwood Road, Boston, Mass.
Chemist, New England Gas & Coke Company.
William F. Becker (VI.), 68 W. Washington Street, Chicago, Ill.
Foreman, Becker Brothers, Electrical Engineers.
Robert Bixby (II.), 36 Cedar Street, Lynn, Mass.
With General Electric Company.
Charles E. Broad (II.), 53 Commonwealth Avenue, Chestnut Hill, Mass.
With Stanley Motor Carriage Company, Newton.
Frank W. Brownell (VI.), 10 Ten Broeck Street, Albany, N.Y.
With Consolidated Car Heating Company.
Henry A. Buff (III.), 23 Cheshire Street, Jamaica Plain, Mass.
Charles K. H. Bunting, Sp., Burlington, Vt.
Advertising and Circulating Manager, Burlington *Daily News*.
Edward A. Burkhardt (XIII.), 6 Parley Vale, Jamaica Plain, Mass.
With Burkhardt Brewing Company.
Harry P. Charlesworth (VI.), Hotel Thorndike, Haverhill, Mass.
Engineer Department, American Telephone & Telegraph Company.
Walter B. Cain (XIII.), 10 Bates Avenue, E. Weymouth, Mass.
Student at M. I. T.
George A. Casey (VI.), 31 State Street, Boston, Mass.
With H. I. Hahn & Co., Bankers.
Leslie Clough (II.), 23 Avon Street, Wakefield, Mass.
With Bradlee & Chatman Company, Heating and Ventilating Engineers, 121 Beverly Street, Boston.
Edgar B. Cooper (II.), Ponce, Porto Rico.
Superintendent Street Railway.
Irving H. Cowdry (II.), Mass. Inst. Technology, Boston, Mass.
Assistant in Mechanical Engineering Drawing.
David H. Cowell (VI.), 21 Monadnock Street, Dorchester, Mass.
Harold G. Crane (VI.), Mass. Inst. Technology, Boston, Mass.
Assistant, Electrical Engineering Laboratory.

Digitized by Google

Frank S. Craver (III.), Harvey, Ill.
Manager Glacial Mining Company, Martinsville, Ind.

Carroll C. Curtis (IX.), 5 Beals Street, Brookline, Mass.
With Boston Insurance Company.

Robert C. Cutting (II.), P.O. Box 11, Baden, Pa.
Inspector with United States Engineering Corps at Dam No. 4, Ohio River, Legionville.

John C. Daly, Jr. (III.), 47 Townsend Street, Roxbury, Mass.

John C. Damon (VI.), Tech Chambers, Boston, Mass.
Assistant in Electrical Engineering Laboratory, M. I. T.

Philip G. Darling (II.), 158 Central Street, Winter Hill, Mass.
With Hancock Inspirator Company, Boston.

David L. Davis (V.), Talavera-Neslva-Ecija, Luzon, P.I.
Teacher in Philippine Government Service.

Charles L. Dean (III.), Buffalo, N.Y.
Bessemer Metallurgist, Lackawanna Steel Company.

Henry L. Dean (XIII.), 90 Harvard Avenue, Hyde Park, Mass.
With B. F. Sturtevant Company.

Albert C. Dickerman (XIII.), 21 Mill Street, Dorchester, Mass.
Draughtsman, Fore River Shipbuilding Company, Quincy.

John F. Douglas (X., VIII., VI.), 103 Barrett Street, Schenectady, N.Y.
Tester with General Electric Company.

Lewis D. Eaton (II.), Apartado 99, Simaloa, Mazatlan, Mexico, care A. B. Paine.
Surveying.

Howard M. Edmunds (VI.), Nürnbergerstr. 65, Berlin, Germany.
Single Phase Railway work with the A. E. G., 43 Dorotheen Strasse.

George B. Farnham (VI.), Wellesley, Mass.
With New England Telephone & Telegraph Company.

Frank S. Farrell (V.), 178 Maple Street, Springfield, Mass.

Robert D. Farrington (II.), Bellevue Street, W. Roxbury, Mass.
Student at M. I. T.

Charles Field, 3d (V.), Room 14, Research Laboratory, M. I. T., Boston.
Research Chemist.

Joseph C. Field (VI.), 346 West 19th Street, New York, N.Y.
Apprentice, Western Electric Company.

William P. Field (VI.), 84 Bay View Avenue, Lynn, Mass.
Salesman, Crocker, Wheeler Company.

Digitized by Google

True H. Files (I.), 14 Chestnut Street, Everett, Mass.
Civil Engineer, care Ransome & Smith Company, New York Despatch.
Howard H. Flagg (II.), 3344 Calumet Avenue, Chicago, Ill.
Engineering and Sales Department, Crane Company.
Ralph K. Forsyth (XIII.), 122 35th Street, Newport News, Va.
With N. N. S. B. & D. D. Company.
Elbert Fowler (XIII.), Griffin, Ga.
Lawrence U. Fuller (II.), 26 Vine Street, W. Lynn, Mass.
With Lynn Gas & Electric Company.
Horace W. Gallup (V.), 52 Rector Street, Perth Amboy, N.J.
Chemist, American Smelting & Refining Company.
Robert S. Gardner (XIII.) M. I. T., Boston, Mass.
Burton E. Geckler (IV.), 53 Howard Street, Springfield, Mass.
Architectural Draughtsman, 476 Main Street.
Thomas F. Geraghty (III.), 464 Elm Street, Chicago, Ill.
Yard Foreman, Rolling Mill, Sellers Manufacturing Company.
Ralph S. Gifford (V.), 112 Huntington Avenue, Boston, Mass.
Assistant Instructor, M. I. T.
William S. Gouinlock (III.), Warsaw, N.Y.
With Warsaw Wilkinson Company.
Ronan C. Grady, Sp., 897 Saratoga Street, East Boston, Mass.
Midshipman, United States Navy.
Errett McL. Graham (I.), Lovedale, Tenn.
Resident Engineer, Southern & Western R.R.
Edward Chester Grant (XIII.), Chicago, Ill.
With Western Electric Company.
Theodore Green (I.), 1056 Second Street, Louisville, Ky.
William Green (VI.), 138 Eustis Street, Boston, Mass.
Robert B. Gregson (II.), 43 Hurd Street, Lowell, Mass.
With Hamilton Manufacturing Company.
Fred W. Guibord (V.), 1621 13th Street, Washington, D.C.
4th Assistant Examiner.
Selskar Gunn (VII.), 739 Boylston Street, Boston, Mass.
Boston Biological Chemical Laboratory.
Clinton O. Harrington, Jr. (I.), 1024 Franklin Avenue, Wilkinsburg, Pa.
With Union Switch & Signal Company, Swissvale.
Herbert M. Hathaway (IV.), 1133 Broadway, New York, N.Y.
With John Russell Pope, Architect.
Harvey M. Hickok (I.), 210 Flour Exchange, Minneapolis, Minn.
Design and Erection of Grain Elevators.

Digitized by Google

Warren S. Higgins (VI.), 183 Bakely Place, Brooklyn, N.Y.
Percy G. Hill (II.), Wallingford, Conn.
Cable Department, Southern New England Tel. Company, New Haven.
Harold G. Hixon (III.), 147 Logan Avenue, Denver, Col.
With Yak Mining, Milling & Tunnel Company, Leadville.
John H. Holliday, Jr. (II.), 1121 North Meridian Street, Indianapolis, Ind.
Special Apprentice, Atlas Engine Works.
George A. Hool (I.), 40 Eagle Street, Albany, N.Y.
Draughtsman, M. of W. Department, N. Y. C. & H. R. R.R., Mohawk Division.
Roger P. Ingalls (VI.), P.O. Box 308, Lexington, Mass.
Draughtsman with French & Hubbard, Boston.
Henry L. Jackson (V.), M. I. T., Boston, Mass.
Assistant in Oil Analysis.
Gilman B. Joslin (XIII.), 46 Burroughs Street, Jamaica Plain, Mass
Walter E. Kimball (VI.), 39 Standish Avenue, Wollaston, Mass.
Herman W. Lackman (II.), 819 W. Sixth Street, Cincinnati, Ohio.
Brewer.
James McC. Lambie (II.), P.O. Box 441, West Seneca, N.Y.
With Lackawanna Steel Company.
Leon K. Laney (II.), 615 E. University Avenue, Ann Arbor, Mich.
University of Michigan, Class '06.
Frank H. Langworthy (II.), 94 Hanover Street, Lynn, Mass.
Post-office Department, Lynn.
Lily M. Lewis (IV.), 603 Hampton Avenue, Wilkinsburg, Pa.
E. E. Lochridge, B.S., 43 Bridge Street, Springfield, Mass.
Engineer, Water Department of Springfield.
Warren W. Loomis, 12 Munroe Street, Roxbury, Mass.
With Stone & Webster.
Married April 21, 1904, to Gertrude L. Talmadge, of West Suffield, Conn.
Edward H. Lorenz (II.), 96 Garden Street, Hartford, Conn.
With Fenn-Sadler Machine Company.
John S. Loughlin (II.), 162 Adelphi Street, Brooklyn, N.Y.
Draughtsman, E. W. Bliss Company.
Andrew J. Lowndes (II.), 521 Clinton Avenue, Brooklyn, N.Y.
Horace J. Macintire (II.), Mass. Inst. Technology, Boston, Mass.
Assistant in Mechanical Engineering.

Digitized by Google

Arthur J. Manson (VI.), 408 Whitney Avenue, Wilkinsburg, Pa.
Apprentice, Westinghouse Electric & Manufacturing Company.
Jason L. Merrill (V.), 143 Mott Terrace, Schenectady, N.Y.
Research Chemist.
Oscar C. Merrill (I.), 2602 Dwight Way, Berkeley, Cal.
Instructor in Civil Engineering, University of California.
Harold W. Mitchell, Sp., Cleveland Ohio.
Draughtsman, Lincoln Electric Company.
John H. Morse, Sp., Jacksonville, Ala.
Supervisor of Manual Training, Alabama State Normal School.
Robert W. Morse (II.), 49 Holbrook Street, Jamaica Plain, Mass.
Barber Asphalt Paving Company, Land Title Building, Philadelphia, Pa.
Walter N. Munroe (VI.), 56 Bowdoin Avenue, Dorchester Centre, Mass.
Student at M. I. T.
Floyd A. Naramore (XIII.), 39 St. Botolph Street, Boston, Mass.
Student at M. I. T.
Henry H. Neson, Jr. (II.), 16 Myrtle Street, Jamaica Plain, Mass.
Student at M. I. T.
William A. Nelson (XIII.), 234 22d Street, Milwaukee, Wis.
Robert P. Nichols (XIII., IX.), Commercial Wharf, Boston, Mass.
With Eastern Steamship Company.
George C. Norton (IV.), 147 East 37th Street, New York, N.Y.
Adolph John Ortseifen (XIII.), 514 East 46th Street, Chicago, Ill.
Treasurer of Henry Newgard & Co.
Tom W. Osgood (III.), 406 8th Street, South, Fargo, No. Dak.
Lowell H. Parker (I.), Osterville, Mass.
Assistant Engineer.
Frank E. Payne (XIII.), 17 Battery Place, New York, N.Y.
Draughtsman with Otis Elevator Company.
Arthur Perkins (I.), 66 West 104th Street, New York, N.Y.
With C. B. Beach & Co., Publishers.
Edward D. Perry (XIII.), Bath Iron Works, Bath, Me.
Roland A. Perry (V.), 10 Chestnut Street, Medford, Mass.
Thomas C. Pinkerton (V.), 93 Broad Street, Boston, Mass.
Chemist with A. D. Little.
Frederick A. Pirie (II.), 48 Bradstreet Avenue, Beachmont, Mass.
Assistant with J. T. Wilson & Son, Nahant.
Henry S. Pitts (IV.), 169 Angell Street, Providence, R.I.

Digitized by Google

James A. Pitts (II.), P.O. Box 619, Johannesburg, South Africa.
Assistant Engineer, Fraser & Chalmers.

Francis B. Riley (II.), Hanover, N.H.
Student Dartmouth College.

Charles L. Rodgers (II.), 418 Walker Street, Lowell, Mass.
Mechanical Engineer with Lamson Consolidated Store Service Company.

Milton L. Rubel (III.), Mascota, Estado de Jalisco, Mexico.
With The Lupita Mines Company.

Henry H. Russell (VI.), Claremont, N.H.
Assistant Superintendent, Maynard Rubber Company.

Ida A. Ryan (IV.), 19 Hammond Street, Waltham, Mass.
Graduate Student at M. I. T.

Frederic Van B. Sawin (II.), 11 Windom Street, West Somerville, Mass.
Equipment Inspector, New England Telephone & Telegraph Company, Boston.

Lane Schofield (III.), P.O. Box 234, Williamson, W. Va.

George W. Scott (XIII.), 220 Forest Street, Medford, Mass.
With Scott & Sons Company.

Samuel Seaver (XIII.), Waban, Mass.
Student at M. I. T.

Henry B. Siebrecht (VI.), 325 Broadway, Long Island City, N.Y.
Wholesale Growing Business.

Fred W. Simonds (I.), Utica, N.Y.
Assistant on Engineering Corps, N. Y. C. & H. R. R.R., Mohawk Division.

Russell B. Simons (XIII.), 65 Cleverly's Court, Quincy, Mass.
Assistant Inspector, Fore River Shipbuilding Company.

Willard E. Simpson (I.), 19 Linden Street, Allston, Mass.
Assistant, Civil Engineering Department, at M. I. T.

Charles E. Smart (II.), Claremont, N.H.
With Sullivan Machine Company.

Albert H. Smith (XIII.), 5 Elmwood Park, Malden, Mass.
Assistant at M. I. T.

Albert L. Smith (V.), 25 Dartmouth Street, Boston, Mass.
Assistant in Chemistry at M. I. T.

Preston M. Smith (X.), 1615 West Genesee Street, Syracuse, N.Y.
With Franklin Automobile Company.

Theodore L. Smith (II.), Concord, Mass.

Digitized by Google

Walter A. Staples (VI.), 130 Princess Street, St. John, N.B., Canada.
F. Charles Starr (I.), 19 McLellan Street, Dorchester, Mass.
Assistant in Civil Engineering Department at M. I. T.
Edward T. Steel (VI.), 6 Louisburg Square, Boston, Mass.
Student at M. I. T.
Harold C. Stetson (VI.), Wellesley Hills, Mass.
With New England Telephone & Telegraph Company.
Henry J. Stevenson (II.), 41 Princeton Street, East Boston, Mass.
Draughtsman, Library Bureau.
Theodore A. Stramblad, Sp., Hurdsfield, N. Dak.
James H. Tebbets (II.), 49 Grover Avenue, Winthrop Highlands, Mass.
With Lockwood, Green & Co.
Albert O. True (XI.), 2124 Farmers Bank Building, Pittsburg, Pa.
Engineer's Assistant, Pittsburg Filter Manufacturing Company.
LeBaron Turner (I.), Geneva, Ill.
With Engineering Department, Big Four R.R., Cincinnati, Ohio.
Robert N. Turner (I.), 17 Leonard Street, Waltham, Mass.
Boston University, Class '06, Boston University Law School, '07.
George G. Wald (III.), Bingham Canyon, Utah.
Sampler for Boston Consolidated Mining Company.
Frederick C. Wales (I.), 126 W. 127th Street, New York, N.Y.
Engineering Department, N. Y. C. & H. R. R.R.
Albert W. Walker (XI.), Belle Fourche, S.D.
Engineering Aid, United States Reclamation Service.
Roy W. Wastcoat (VI.), 140 Middleboro Avenue, Taunton, Mass.
Harry H. West (III.), 20 Plympton Street, Woburn, Mass.
Ralph N. Whitcomb (I.), 43–49 Exchange Place, New York, N.Y.
With J. G. White & Co.
Ray H. White (VIII.), 52 Beaver Street, New York, N.Y.
Chemical Engineer, care C. B. Jacobs.
Robert E. Wise (I.), South Lancaster, Mass.
Transitman, Massachusetts Harbor & Land Commission.
Milford Wortham (III.), 145 East 61st Street, New York, N.Y.
Mining Engineer.

Digitized by Google

NECROLOGY.

THEODORE SPENCER, '91

The death of Theodore Spencer at Philadelphia, on Jan. 28, 1906, of acute peritonitis, brought to a premature close the life of a young man who had risen in a very short time to a position of great responsibility.

Born on Aug. 19, 1870, at Camp Douglas, Utah, he was the eldest son of the late William E. Spencer, surgeon in the United States Army during the Civil War.

Graduated from the Institute as an electrical engineer in 1891, his first professional duties were with the Thomson-Houston Company, which was later the General Electric Company of Lynn, Mass. After a short term with this company he entered the engineering department of the American Bell Telephone Company at Boston.

The records of the Patent Office bear evidence of his inventive ability and skill while engaged in experimental work in the laboratories of the Bell Telephone Company. He was largely responsible for the development of the common battery system, whereby the cells at the instruments of the telephone subscribers were done away with, and the storage battery at the central office substituted; and it was principally through his work that this system, which is now in general use throughout the world, was brought to perfection. The first large common battery installation in the world was made in Philadelphia at No. 406 Market Street, and Mr. Spencer was sent here from Boston in 1894, as superintendent of electrical equipment, to supervise the work.

Later he was made engineer of the Bell Telephone Company of Philadelphia. He rapidly earned advancement to the position of general superintendent, and later general manager, and at the time of his death he was the general manager, vice-president, and one of the directors of the Bell Telephone Company, and of the Delaware

Digitized by Google

and Atlantic Telegraph and Telephone Companies, and was also vice-president and director of the Diamond State Telephone Company.

Although an engineer by training, and possessed of a broad technical knowledge, Mr. Spencer was endowed in a remarkable degree with executive ability, and with the most valuable of all abilities, "common sense." He was logical and far-sighted, and, when his keen judgment had determined on the course to be followed, his executive abilities enabled him to obtain his results economically and quickly.

A keen intellect and tireless energy, coupled with a remarkable initiative and administrative ability, swept before him difficulties which would have severely tried a man less fully equipped. A simple modesty and considerate demeanor, together with broadness of mind and nobility of character, won for him the love and admiration of all.

While we mourn the loss of one who at a very early age had reached a high position in the affairs of men, we cannot but feel that his life has been an inspiration to loftier and nobler ideals.

JOHN L. BATCHELDER, JR., '90.
PAUL W. ENGLAND, '91.

FREDERICK TALLMADGE TOWNE, '93

A YOUNG CAPTAIN OF INDUSTRY

Every Technology man will learn with deepest sorrow of the sudden death of Frederick Tallmadge Towne, '93, general superintendent of the Yale & Towne Manufacturing Company, who passed away at his home in Stamford, Conn., Feb. 4, 1906.

An acute attack of Bright's disease overcame him just as he had finished addressing a meeting of workmen at the factory on the occasion of the annual award of prizes for suggestions of mutual benefit to the firm and its employees. With the cheers of his men ringing in his ears, Mr. Towne sank into a chair in a state of collapse. Taken to an open window, he rallied for a moment, recog-

Digitized by Google

nized his wife, and uttered her name. After that he was unconscious to the end, which came at his home early the next morning.

Although but thirty-four years old, he had risen from the machine shop to the general superitendency of an industry which necessitated the closest familiarity with a multiplicity of intricate details such as hardly any other business calls for. Possessed of an unusual genius for organization, coupled with great executive ability, he directed his men with unerring judgment, and commanded their respect and love by his absolute fairness and fine sense of justice. His wish was that the Yale & Towne manufactory be a model one, not only in the quality of its product, but also in the relation between employer and employees, and with this in mind he had established a student course in the factory, where ambitious young men might make themselves more valuable.

As president of the National Founders' Association, Mr. Towne gained a national reputation by his skill and judgment in solving the many embarassing questions of policy arising between that association and organized labor.

In his own city he commanded the respect and esteem of every one, and had more than once been mentioned as candidate for mayor.

As a friend, he proved himself loyal and unselfish, and his unswerving integrity and steadfastness of purpose will ever remain a worthy ideal to those who came in contact with him.

JOHN L. BATCHELDER, JR., '90.

HENRY TYLER WOODS, '93

H. T. Woods died very suddenly February 12, 1906, of meningitis. This news came as a sad shock to his many friends, since he had been in good health up to a week before his death.

Mr. Woods was born in Somerville, Mass., Nov. 24, 1870. He prepared for the Massachusetts Institute of Technology at the Somerville High School, and entered the Institute in the fall of 1889. While at the Institute, he took the mechanical engineering course, and received his degree in 1893. The following year he spent at

Digitized by Google

Harvard University, where he was graduated, and received the degree of Bachelor of Arts in June, 1904. After graduation he entered the wholesale coal business with the firm of Sturtevant, Norton & Co., where he remained for about two years, after which he went into business for himself as a wholesale coal dealer, in which business he was engaged up to the time of his last illness.

He was always an enthusiastic automobilist, and also took great interest in mountain trips, both in winter and summer. He was a member of the Appalachian Mountain Club, the Pembroke Country Club, and the New England Railroad Club.

Having attended both the Institute of Technology and Harvard University, he had a wide acquaintance around Boston, and leaves many friends who sincerely mourn his loss.

E. D. D., '93.

Digitized by Google

BOOK REVIEWS.

WHAT IS RELIGION? AND OTHER STUDENT QUESTIONS. TALKS TO COLLEGE STUDENTS

By Henry S. Pritchett. x + 117 pp. Boston and New York: Houghton, Mifflin & Co., 1906.

No one who has come into intimate contact with young men at an age when the sense of responsibility toward their fellow-men and toward the organizations existing in the communities in which they live is beginning to make itself felt can fail to realize that one of the most serious, and often the most perplexing, of their problems concerns their relations with the churches, and with those things for which the churches should stand. And, on the other hand, the situation is hardly less serious for the churches themselves; for there never was a time when these organizations were more in need of the co-operation and enthusiastic support of thoughtful young men than now, nor, perhaps, a time when there has apparently been a greater tendency to hold aloof. It is, therefore, eminently timely and proper that some one should deal fearlessly with these questions; and this Dr. Pritchett has done in an admirable way in the series of talks embodied in this little volume, which is dedicated to "the students whose friendship and fellowship form the inspiration of a college president's life."

The volume comprises five addresses, made before various groups of students. The titles are successively: "What is Truth?" "What is Religion?" "The Science of Religion," "The Significance of Prayer," and "Ought a Religious Man to join a Church?" The first talk contains a plea for the thoughtful development of individual convictions or beliefs rather than the mere acceptance of an inherited religion, and also a plea for tolerance. The second points out the distinction between dogma and religion, and dwells upon the conception of God as the source of energy of body, mind,

Digitized by Google

or spirit. The third address concerns itself with the development of the thought that religion cannot be compared with the exact sciences, and that its formulæ, as represented by creed or theological dogma, must necessarily be regarded as inexact expressions, which have often been framed under great stress of circumstances, although they are also "visions of truth as seen by great souls," and, as such, must always appeal strongly to many, if not all, thoughtful natures.

The dominant thought in the fourth address concerns the conception of prayer to which the "scientific spirit" and a rational conception of the Deity should lead. The subject is one with which it is so difficult to deal in a satisfying way that it should not be surprising if this address prove somewhat less acceptable than the others to many readers.

The final address deals frankly with some of the shortcomings of our churches as well as with their helpfulness when rightly used, and emphasizes clearly, on the one hand, that a formal membership in the churches does not in itself make a young man religious, while, on the other hand, failure to assume such a close relationship neither absolves him from the responsibility of becoming a truly religious man nor does it of itself in any way debar him from becoming such a man.

The particularly helpful features of these addresses are their avowedly *ad hominem* character and their directness in dealing with specific questions. The young man of religious tendencies, inherited or not, will find much to bid him pause and take account of the sincerity of his convictions, but nothing which should alienate him from anything which is good and sound in his life. The young man who is inclined to put aside all candid thought of religious affairs will find a call to duty; and the young man who has thought earnestly, but feared lest his inability fully to accept formulated creeds or dogma might condemn him as an irreligious man, will find great comfort.

H. P. Talbot, '85.

Digitized by Google

THE INDIAN DISPOSSESSED

By Seth K. Humphrey (M. I. T. '97). With 16 full-page illustrations from photographs. Boston: Little, Brown & Co., 1906.

In this volume of three hundred pages the author vividly and feelingly sets forth the treatment of various tribes of reservation Indians by the United States government, quoting abundantly from public documents, and supplementing these generous extracts with pungent and interesting comments and criticisms. The tale certainly reflects little credit upon those in authority, and it is a story, too, which cannot fail to appeal to one's sympathies. And yet, granting many or even most of the claims urged in behalf of these wards of the nation, certain questionings may still arise. It may well have been a mistake ever to have dealt with the Indians by means of treaties, thus apparently conceding to them an unwarranted measure of independence and sovereignty. The fact, repeatedly referred to, that these treaties have often been nullified by subsequent acts of Congress, may be an example of bad morals, but such action is certainly not illegal or unconstitutional. Congress may equally override a treaty with England or France. Again, in spite of the author's vivid pictures and impassioned language, the reader will occasionally find himself confronted with the doubt as to whether the race is worth saving, anyway: not that we, as a people or as a government, should deliberately plot to wipe out the Indian, rather should we treat him with strict justice and equity. Nevertheless, it may be permissible to propound the query whether the interests of the human race as a whole demand exceptional or extraordinary consideration of this particular branch of it. The Indians are, however, gradually growing fewer and fewer. In three or four generations more they will probably cease to constitute a serious problem. Mr. Humphrey does well to call pointed attention to one phase of our national shortcomings, as illustrated by our treatment of the Indians, thus reminding us of our frailties, and perhaps dropping hints that will be of service in the solution of other race problems now on our hands. C. F. A. C.

Digitized by Google

ALPHABETICAL LIST OF ADVERTISERS

	PAGE
American School of Correspondence	11
Atlantic Works, The	1
Barrus, George H.	2
Cabot, Samuel	2
Chicago and Alton Railway	2
Chase, Harvey & Company	3
Child, Stephen	3
Davis Foundry Company	4
Dean & Main	3
Draper Company	Cover
Ellis, Geo. H. Co.	16
Gowing, E. H.	3
Harrison Safety Boiler Works	Cover
Hub Engraving Co.	2
Knapp, F. B.	3
Little, Arthur D.	2
Mason Regulator Co., The	13
Massachusetts Institute of Technology	Cover
Merrimac Chemical Co.	4
Metcalf, Leonard	3
Morse Twist Drill and Machine Co.	13
Richards, Ellen H.	3
Richards, Robert H.	3
Samson Cordage Works	1
Simplex Electrical Co.	6
Smith, S. Morgan, Company	1
Star Brass Manufacturing Company	16
Stone & Webster	4
Sturtevant, B. F., Company	6
Taintor, Giles	3
Tech, The	15
"Technique, 1907"	15
Technology Review, The	10
Todd, Thomas	16
Turner, E. K.	3
Walworth Manufacturing Company	5

Digitized by Google

The Technology Review

A QUARTERLY MAGAZINE
DEVOTED TO THE
INTERESTS OF THE
MASSACHUSETTS INSTITUTE
OF TECHNOLOGY

AND

PUBLISHED BY THE ASSOCIATION OF CLASS SECRETARIES

83 NEWBURY STREET, BOSTON

The Review aims to develop closer relations among Institute men and to stimulate their interest in the work of the College.

It is in no sense an engineering magazine, but deals broadly with the problems of Technological Education and the responsibilities of the professional man.

THE REVIEW is published during January, April, July, and October. Communications should be addressed to THE TECHNOLOGY REVIEW, 83 Newbury Street, Boston, Mass.

SUBSCRIPTION, ONE DOLLAR A YEAR
SINGLE COPIES, THIRTY-FIVE CENTS

Volumes I., III., IV., and V., finely bound in half morocco, are ready for delivery at $2.00 each, or will be exchanged for unbound sets, provided they are in good condition, at $1.00 each. (If sent by mail, 30 cents extra.) Volumes VI. and VII. at $2.25 each, or they will be exchanged for unbound sets at $1.25 each.

Digitized by Google

Technical Instruction by Mail

The American School of Correspondence, Chicago, formerly of Boston, offers instruction by correspondence in Electrical, Mechanical, Stationary, Marine, Locomotive, Civil, Railroad, Structural, Municipal, and Hydraulic

ENGINEERING

Architecture, Structural Drafting, Mechanical Drawing, Perspective Drawing, Telephony, Telegraphy, Navigation, Heat, Ventilation, Plumbing, Sheet Metal Pattern Drafting, and Textile Manufacturing, including Cotton, Wool and Worsted, Knitting, Finishing, Chemistry and Dyeing; also

COLLEGE PREPARATORY COURSES

(fitting for entrance to Engineering Technical Schools)

The instruction offers those who have not the means or time to attend a resident school an opportunity for self-improvement under the guidance of thoroughly competent teachers. The instruction papers have been prepared especially for home study by men of high professional standing. Among these are

Prof. Louis Derr, Massachusetts Institute of Technology
Prof. F. B. Crocker, Columbia University
Prof. L. S. Marks, Harvard University
Prof. W. H. Lawrence, Massachusetts Institute of Technology
Prof. F. E. Turneaure, University of Wisconsin
Prof. W. S. Leland, Massachusetts Institute of Technology
Prof. Wm. Esty, Lehigh University
Prof. H. W. Gardner, Massachusetts Institute of Technology
Prof. W. L. Webb, formerly University of Pennsylvania
Prof. C. L. Griffin, formerly Pennsylvania State College
Prof. A. Marston, Iowa State College
Prof. A. E. Phillips, Armour Institute of Technology
Prof. H. E. Everett, University of Pennsylvania
D. A. Gregg, Boston

For further information and catalogue address

AMERICAN SCHOOL OF CORRESPONDENCE

CHICAGO, ILL. A. E. ZAPF (M. I. T. '95), Sec'y

Digitized by Google

Some Comments on the Review

[From the Boston *Herald*, Sunday, February 14, 1904.]

No other college periodical that comes to our table has the freshness, readableness, and fine flavor of earnestness of the *Technology Review*. Primarily, of course, the *Review* is an arena for exploitation of the ideal of the Institute of Technology, dissemination of information about it and the cultivation of loyalty; but this purpose is pursued so broadly and generously that the publication has become not only interesting, but important, to the educational world generally, and especially to all who are concerned with the development of that motive and mode of education which the Institute exists to exemplify. The value of its contents is high, and the tone throughout is lofty and generous.

BOSTON, MASS.

. . . "I consider the REVIEW one of the very best things of its kind and most useful to the Institute."

Professor ———.

DENVER, COL.

"The TECHNOLOGY REVIEW is all right. Count on me as a subscriber for life. Every man at the M.I.T. should have it."

———, '87.

SAN JUAN, P.R.

. . . "I find it very interesting, and the only way I can keep track of what is doing in and for the Institute."

———, '89.

HACKENSACK, N.J.

"THE REVIEW is A1, and I congratulate the Committee on their success. I will try to get my share of new subscribers."

———, '91.

So. BETHLEHEM, PA.

"I hardly know what I should do without it. The REVIEW deserves the best possible financial support, just as it does the personal and collective thanks of all our alumni."

———, '93.

WILKINSBURG, PA.

. . . "I should be sorry to miss a single number of the REVIEW."

———, '98.

NEW YORK, N.Y.

"No Tech man should consider a year well spent unless he has paid his next year's subscription to the REVIEW."

———, '98.

PORTLAND, OR.

. . . "THE TECHNOLOGY REVIEW is a credit to Tech and to the Association of Class Secretaries, and every alumnus should take it."

———, '04.

Digitized by Google

Morse Twist Drill and Machine Co.

NEW BEDFORD, MASS., U.S.A.

Makers of

INCREASE AND CONSTANT ANGLE
TWIST DRILLS, REAMERS, CHUCKS,
MILLING CUTTERS, TAPS, DIES,
MACHINERY AND MACHINISTS' TOOLS

THE MASON REGULATOR CO.

INCORPORATED 1883

STANDARD STEAM SPECIALTIES

Reducing Valves, Damper Regulators, Pump Governors,
and Automatic Appliances of all descriptions for the regulation and control of Steam, Water, and Air Pressures.

158 SUMMER STREET, COR. FEDERAL STREET, BOSTON, MASSACHUSETTS

WORKS AT DORCHESTER LOWER MILLS, MASS.

Digitized by Google

The Technology Review

Contents of Volume VI.

Volume VI. January, 1904 Number 1

FRONTISPIECE: Laboratory of Dynamo-electric Machinery, looking South.

THE AUGUSTUS LOWELL LABORATORIES OF ELECTRICAL ENGINEERING — HARRY E. CLIFFORD, '86

THE COURSE IN GENERAL STUDIES — ARTHUR A. NOYES, '86

THE JUNE ALUMNI REUNION — HENRY S. PRITCHETT

THE OBSERVANCE OF COMMENCEMENT BY THE ALUMNI — FREDERICK H. FAY, '93

THE TREASURY DEPARTMENT — JULIAN E. WOODWELL, '96

LOWELL INSTITUTE SCHOOL FOR INDUSTRIAL FOREMEN — CHARLES F. PARK, '92

EDITORIALS:

THE INSTITUTE:
Corporation Notes.— Registration Notes.— Changes in Entrance Requirements.— Publications.— General A. P. Rockwell.—Conference of Teachers.—The British Education Commission.— General Notes.— Department Notes.— Society of Arts.

THE UNDERGRADUATES:
Class and Other Officers.— Convocations.— President Pritchett to the Freshmen.— The Honor System.— Athletics.— Dinners and Receptions.— Notes.

THE GRADUATES:
Annual Meeting of the M. I. T. A. A.— The Northwestern Association of the M. I. T.— The Technology Club of New York.— The Washington Society of the M. I. T.— Association of Class Secretaries of the M. I. T.— The Technology Club.— News from the Classes.

BOOK REVIEWS:
Williams's "High School Chemistry in its Relation to the Work of a College."—Boutelle's "Man of Mount Moriah."— Elson's "Woman's Work in Music."

Volume VI. July, 1904 Number 3

FRONTISPIECE: The Rogers Building.

THE FIRST TECH REUNION.

THE PROPOSED COMBINATION WITH HARVARD.

THE GORDON McKAY ENDOWMENT.

THE TECHNOLOGY FUND.

THE INSTITUTE:
Corporation Notes.— Faculty Notes.— Entrance Examinations.— Department Notes.— Society of Arts.

THE UNDERGRADUATES:
Junior Week.— Professional Societies.—Class Organizations and Clubs.— The Annual Meet.— The Dartmouth Meet.— Amherst Meet — Notes.

THE GRADUATES:
The Washington Society of the M. I. T.— The Technology Club of the Merrimack Valley.— The Tech Society of Philadelphia.— The Annapolis Society of the M. I. T.— The Connecticut Valley Association, M. I. T.— News from the Classes.

NECROLOGY: Julian Abbot Kebler, '78.

BOOK REVIEWS:
Dewey's "Employees and Wages."— Pearson's "Life of John A. Andrew, Governor of Massachusetts, 1861–1865."

Volume VI. April, 1904 Number 2

FRONTISPIECE: The Tennis and Racquet Club, Boston, Mass.

THE TENNIS AND RACQUET CLUB, BOSTON, MASS. FRANCIS W. CHANDLER

A LABORATORY COURSE IN INDUSTRIAL CHEMISTRY — WILLIAM H. WALKER

THE JUNE REUNION H. W. TYLER, '84

THE PROPOSED HARVARD–TECHNOLOGY MERGER.

THE COURSE IN GENERAL STUDIES.

THE INSTITUTE:
The Corporation.— General Alfred P. Rockwell.— Summer Courses.— Summer School of Mining.— Exhibit at St. Louis.— Notable Meetings.— Reception to Mrs. William Barton Rogers.— General Notes.— Department Notes.

THE UNDERGRADUATES:
The Tech Show.— Professional Societies.— Class Organizations and Clubs.— Y. M. C. A. Meeting.— The Honor System.— Senior Election.— The Tech Hop.— Freshman Battalion Review.—The Library.—Athletics.

THE GRADUATES:
The North-western Association of the M. I. T.— The Technology Club of New York.— Washington Society of the M. I. T.—The Technology Club of Cincinnati.— The Technology Club of the Merrimack Valley.— Technology Men of Montana.— The Association of the Women of the M. I. T.— Association of Class Secretaries of the M. I. T.— The Technology Club.— Communication.— News from the Classes.

BOOK REVIEWS:
Richard's "Ore Dressing."— Munroe's "Adventures of an Army Nurse."

Volume VI. October, 1904 Number 4

FRONTISPIECE: Bust of William Barton Rogers by T. H. Bartlett.

WILLIAM BARTON ROGERS — JAMES P. MUNROE

ADDRESS AT THE CASE SCHOOL OF APPLIED SCIENCE JOHN R. FREEMAN

FREDERIC FIELD BULLARD (The Man) — GELETT BURGESS

FREDERIC FIELD BULLARD (The Musician) — LEO R. LEWIS

THE TECHNOLOGY FUND.

THE BUREAU OF STANDARDS — ALBERT S. MERRILL

THE INSTITUTE:
Corporation Notes.— The New Year.— Faculty Notes.— Summer Courses.— Department Notes.

THE GRADUATES:
Alumni Association of the M. I. T.— Reunion Expenses.— Reunion Stunt Prize.— Washington Society of the M. I. T.— The Tech Society of Philadelphia.— News from the Classes.

NECROLOGY: Jerome Sondericker.— Kilburn Smith Sweet.

BOOK REVIEWS:
"The Institute."—"The Tech."—"Technique," 1905.

Digitized by Google

THE TECH

PUBLISHED EVERY MONDAY, WEDNESDAY, AND FRIDAY DURING THE COLLEGE YEAR BY STUDENTS OF THE MASSACHUSETTS INSTITUTE OF TECHNOLOGY

Alumni desiring to keep in touch with their Alma Mater should read *The Tech*

Gives all the Technology news, covering not only undergraduate activities, but all matters connected in any way with the Institute, such as alumni news, the question of future location, etc. Alumni are especially requested to inform *The Tech* of their movements.

---

86 ISSUES, $1.50 PER YEAR

CHARLES T. BARTLETT, '06
Editor-in-chief

JOHN C. BROOKS, '08
Business Manager

To the Alumni:

TECHNIQUE, 1907

Will be out April Twenty-sixth

This volume will be of especial interest to the Alumni, containing, as it does, an autobiography of Professor Robert H. Richards, to whom the book is dedicated.

Copies { $2.00 collect
2.40 prepaid

ALBERT H. DONNEWALD,
Editor-in-chief

GEORGE A. GRIFFIN,
Business Manager

Digitized by Google

POP SAFETY VALVE

Star Brass Manufacturing Co.

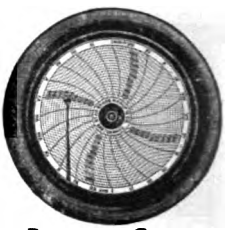
MANUFACTURERS OF

Extra Heavy Solid Nickel-seated Pop Safety Valves for the highest pressures

ALSO ORIGINAL AND EXCLUSIVE MANUFACTURERS OF

Non-corrosive, Steam, Vacuum, and Hydraulic Pressure and Recording Gauges, Extra Heavy Globe and Angle Valves

OFFICE AND WORKS, 108–114 East Dedham Street, Boston, Mass.



RECORDING GAUGE

14 BEACON STREET BOSTON, MASS.

THOMAS TODD, PRINTER

TELEPHONE 601 HAYMARKET

GEO. H. ELLIS CO., *Printers*

NO. 272 CONGRESS STREET, BOSTON, MASSACHUSETTS

ILLUSTRATING, PRINTING, AND BINDING OF MAGAZINES, BOOKS, CATALOGUES, PAMPHLETS, ALSO JOB PRINTING, LAW, RAILROAD, AND MERCANTILE WORK *Telephone, 1549 Main*

Digitized by Google

We sell

COTTON MACHINERY IMPROVEMENTS

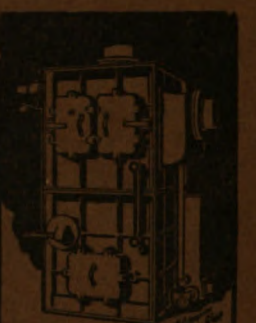
For Spinning
Spooling
Warping
Twisting
Chain-dyeing
and Weaving

DRAPER COMPANY

Hopedale, Mass.

WILLIAM F. DRAPER, *President*
GEORGE A. DRAPER, *Treasurer*, M. I. T., '76
EBEN S. DRAPER, *Agent*, M. I. T., '78
GEORGE OTIS DRAPER, *Secretary*, M. I. T., '87

Digitized by Google



Cochrane Heaters for Condensing Plants

If you are going to run your plant condensing, there are several important reasons why you should use a Cochrane Open Feed Water Heater, operating the pumps and small engines non-condensing and using the exhaust steam from these engines to heat the water in the Cochrane Heater.

Since a condensing engine has an efficiency of less than fifteen per cent, the auxiliaries, if they are run off the main engine, will have the same efficiency minus transmission losses; but if these auxiliaries are run non-condensing, all the heat in the steam supplied to the auxiliaries which is not utilized in doing work can be conserved in the heater, giving the auxiliaries an efficiency of practically one hundred per cent, instead of less than fifteen per cent.

Then there is the higher vacuum you can obtain by having a Cochrane Open Heater to drive off the air and gases from the feed-water, also the independence of the auxiliaries from the main engine, etc.

The new steam turbine plants are being equipped with open heaters,—Cochrane Heaters. There's a reason why.

Let us send you further information if you have, or intend to have, a condensing plant.

HARRISON SAFETY BOILER WORKS

3192 N. 17th STREET PHILADELPHIA, PA.

Digitized by Google

ol. VIII. July, 1906 No. 3.

AUG 10 1906

THE TECHNOLOGY REVIEW

A QVARTERLY MAGAZINE RELATING TO THE MASSACHVSETTS INSTITVTE OF TECHNOLOGY

PVBLISHED AT
83 NEWBVRY STREET BOSTON BY THE
ASSOCIATION OF CLASS SECRETARIES

Copyright, 1906, by Association of Class Secretaries, M. I. T.

THE
MASSACHUSETTS
INSTITUTE OF TECHNOLOGY

Boston, Mass.

THE MASSACHUSETTS INSTITUTE OF TECHNOLOGY aims to give thorough instruction in *Civil, Mechanical, Chemical, Mining, Electrical,* and *Sanitary Engineering;* in *Chemistry, Architecture, Physics, Biology, Geology,* and *Naval Architecture.* The Graduate School of Engineering Research offers courses leading to the degree of Doctor of Engineering.

To be admitted to the Institute, the applicant must have attained the age of seventeen years, and must pass examinations in algebra, plane and solid geometry, physics, history of the United States (or ancient history), English, French, and German. Preparation in some one of a series of elective subjects is also required. A division of these examinations between different examination periods is allowed. In general, a faithful student who has passed creditably through a good high school, having two years' study of French and German, should be able to pass the Institute examinations.

Graduates of colleges, and in general all applicants presenting certificates representing work done at other colleges, are excused from the usual entrance examinations and from any subjects already satisfactorily completed. Records of the College Entrance Examination Board, which holds examinations at many points throughout the country and in Europe, are also accepted for admission to the Institute.

Instruction is given by means of lectures and recitations, in connection with appropriate work in the laboratory, drawing-room, or field. To this end extensive laboratories of chemistry, physics, biology, mining, mechanical engineering, applied mechanics, and the mechanic arts, have been thoroughly equipped, and unusual opportunities for field-work and for the examination of existing structures and industries have been secured. So far as is practicable, instruction is given personally to small sections rather than by lectures to large bodies of students.

The regular courses are of four years' duration, and lead to the degree of Bachelor of Science. In most courses the work may also be distributed over five years by students who prefer to do so. Special students are admitted to work for which they are qualified; and advanced degrees are given for resident study subsequent to graduation.

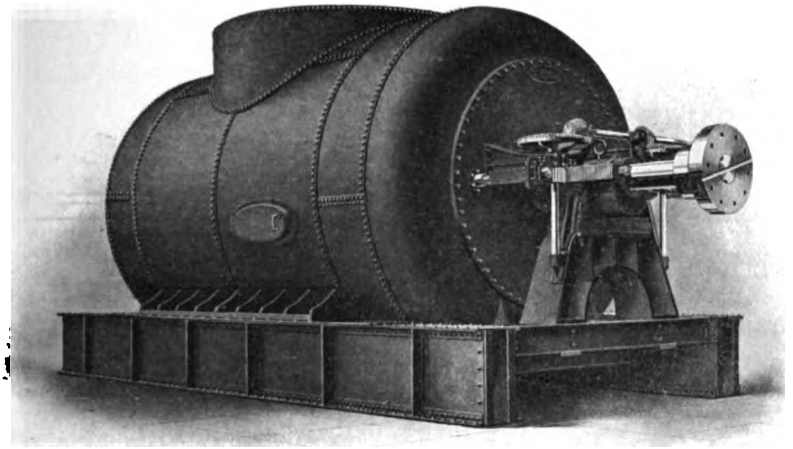
The tuition fee, not including breakage in the laboratories, is $250 a year. In addition, $30 to $35 per year is required for books and drawing materials.

For catalogues and information, address

H. W. TYLER, *Secretary,*
491 Boylston Street, Boston.

Digitized by Google

TURBINE WATER WHEELS



Pair 5,000 h.p. Cylinder Gate Wheels, 80 feet head. 35,000 h.p. of these wheels are operating generators in the Spier Falls plant of the Hudson River Water Power Company, Glens Falls, N.Y.

We make a specialty of designing wheels to suit all conditions

S. MORGAN SMITH COMPANY,

BOSTON OFFICE 176 Federal Street — **YORK, PENNSYLVANIA**

THE ATLANTIC WORKS

INCORPORATED 1853

BORDER, MAVERICK, AND NEW STREETS, EAST BOSTON

BUILDERS OF

Stationary... **BOILERS** and Marine

Plate and Sheet Iron Work of Every Description

STEAMSHIPS, TOW BOATS, STEAM YACHTS AND HEAVY MACHINERY

SAMSON CORD

Warranted perfect braid and smooth finish.
Cotton, Linen, Italian Hemp. All sizes and colors.

SAMSON SPOT CORD

SAMSON CORDAGE WORKS .·. *BOSTON, MASS.*

(1)

Digitized by Google

A. D. LITTLE, '85

H. J. SKINNER, '99
H. S. MORK, '99
F. A. OLMSTED, '03
C. F. SAMMET, '03
T. C. PINKERTON, '05

Arthur D. Little

Chemical Expert and Engineer

93 Broad Street
BOSTON

CHEMICAL CONTROL OF MATERIAL AND PROCESSES

GEORGE A. RICKER, '86
Pres. and Gen. Mgr.

N. W. SHED, '81
Chemist and Metallurgist

BUFFALO
TESTING LABORATORY

INSPECTING ENGINEERS
CHEMISTS AND METALLURGISTS

Office
702 ELLICOTT SQUARE BUFFALO, N.Y.

GEORGE A. RICKER, '86
M. AM. SOC. C. E.
CONSULTING ENGINEER
ELLICOTT SQUARE
BUFFALO, N.Y.

SAMUEL CABOT

MANUFACTURING CHEMIST

Creosote Shingle Stains, Sheathing and Deafening
"Quilt," Lampblack, Brick Preservative,
Conservo Wood Preservative, Etc.

141 Milk Street Boston, Mass.

GEO. H. BARRUS, '74

EXPERT AND
CONSULTING STEAM ENGINEER

Pemberton Building
12 Pemberton Square
BOSTON

Digitized by Google

STEPHEN CHILD, '88

LANDSCAPE ARCHITECT
AND
CONSULTING ENGINEER

Ford Bldg., 15 Ashburton Pl., Boston, Mass.

Member Am. Soc. Civ. Engrs. Telephone

E. H. GOWING, '77

ENGINEER

12–22 Pemberton Square, Boston, Mass.

HARVEY CHASE & COMPANY

PUBLIC ACCOUNTANTS AND AUDITORS

RECENT EXAMINATIONS:
City of Boston, City of Chicago, State of Ohio, City of Minneapolis, Boston Gas Companies, Manufacturing Companies, Savings Banks, Trust Companies, etc.

27 State Street, Boston

Telephone, 3660 Main

GILES TAINTOR

COUNSELLOR AT LAW

53 STATE STREET

BOSTON

E. K. TURNER, '70

CIVIL ENGINEER

53 State Street, Boston, Mass.

ELLEN H. RICHARDS, '73

SANITARY ANALYSES OF WATER SUPPLIES

Consulting Chemist on Food and Dietaries

Massachusetts Institute of Technology

BOSTON

F. B. KNAPP, S.B., '79

PRINCIPAL OF

POWDER POINT SCHOOL, DUXBURY, MASS.

Prepares for Massachusetts Institute of Technology, College, or Business

---

F. W. DEAN CHARLES T. MAIN, '76

DEAN & MAIN

MILL ENGINEERS AND ARCHITECTS

Exchange Building 53 State Street

Boston, Mass.

LEONARD METCALF, '92

M. AM. SOC. C. E.

14 Beacon Street, Boston, Mass.

Telephone, HAYMARKET 1982–3

Water Supply, Sewerage, and Other Engineering Works

ROBERT H. RICHARDS, '68

PROFESSOR OF MINING ENGINEERING
AND METALLURGY

Massachusetts Institute of Technology, Boston, Mass.

Consulting Engineer on Ore Dressing

Digitized by Google

STONE & WEBSTER

84 STATE STREET, BOSTON

GENERAL MANAGERS OF

The Lowell Electric Light Corporation.
The Seattle Electric Company.
Puget Sound Electric Railway.
Columbus Electric Company.
Cape Breton Electric Company, Ltd.
El Paso Electric Company.
Jacksonville Electric Company.
Ponce Electric Company.
Paducah Traction and Light Company.
Pensacola Electric Company.
The Blue Hill Street Railway Company.
Fort Hill Chemical Company.
Tampa Electric Company.
Terre Haute Traction & Light Company.
General Electro-Chemical Company.
Houston Electric Company.
Fall River Gas Works Company.
Galveston Electric Company.
The Key West Electric Company.

The Minneapolis General Electric Company.
Edison Electric Illuminating Co. of Brockton.
Houghton County Electric Light Company.
Brockton and Plymouth Street Railway Company.
The Houghton County Street Railway Company.
Whatcom County Railway and Light Company.
Savannah Electric Company.
Dallas Electric Corporation.
Northern Texas Electric Company.

CHARLES A. STONE, '88
EDWIN S. WEBSTER, '88
RUSSELL ROBB, '88

MERRIMAC CHEMICAL CO.

75 AND 77 BROAD STREET, : : BOSTON, MASS.

MANUFACTURERS OF

Oil Vitriol	Sulphate of Alumina	Bisulphite of Soda
Muriatic Acid	Chloride of Alumina	Hyposulphite of Soda
Nitric Acid	Hydrate of Aluminum	Tin Crystals, etc.
Acetic Acid	Acetate of Alumina	Aqua Ammonia
Acetate of Soda	Glauber's Salt	Wood Alcohol
Alum	Sulphate of Soda	Colors

S. W. WILDER, Treasurer — HENRY HOWARD, Vice-President

DAVIS FOUNDRY COMPANY

LAWRENCE, MASS.

JAMES F. LANIGAN, Proprietor

Structural Iron Work of all descriptions

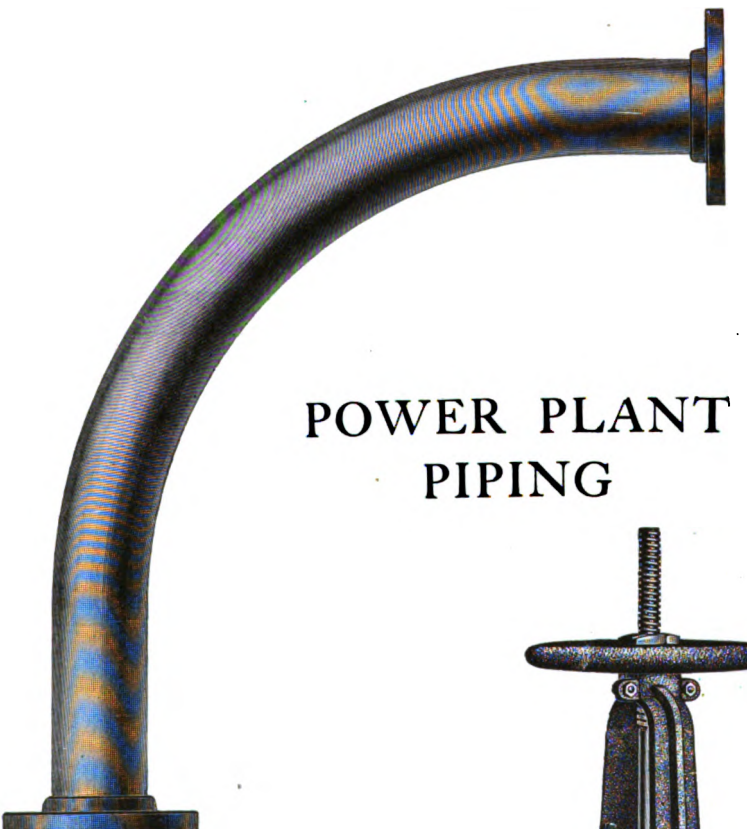
Machinery and Architectural Casting

JAMES F. LANIGAN, JR., '94, Agent

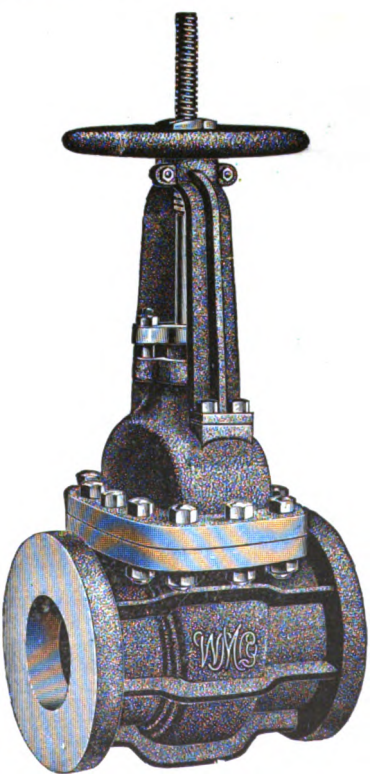
Digitized by Google

WALWORTH
MANUFACTURING COMPANY

BOSTON, U.S.A.



POWER PLANT PIPING



Extra Heavy
Valves and Fitting for
High Pressure Plants.

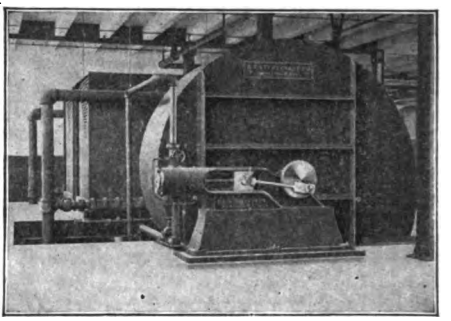
Walmanco.
Pipe Joints.

GENERAL OFFICES

132 Federal Street

Digitized by Google

Positive Results REQUIRE Positive Means



is doubly true in the case of ventilation. The air must be compelled, not merely encouraged, to go where it is wanted. In a word, a fan must be substituted for so-called natural means. **We make the fan.**

Send for our Catalogue No. 112, entitled "Mechanical Ventilation and Heating by a Forced Circulation of Warm Air."

B. F. STURTEVANT CO., Boston, Mass.

General Office and Works, Hyde Park, Mass.

NEW YORK PHILADELPHIA CHICAGO LONDON

Designers and Builders of Heating, Ventilating, Drying, and Mechanical Draft Apparatus; Fans, Blowers, and Exhausters; Steam Engines, Electric Motors, and Generating Sets; Fuel Economizers; Forges, Exhaust Heads, Steam Traps, etc. 506

SIMPLEX

RUBBER INSULATED
HIGH or LOW TENSION

WIRES & CABLES

AERIAL SUBMARINE
UNDERGROUND

EVERETT MORSS President CHAS. A. MORSS Treasurer
HENRY A. MORSS Vice Pres. J. H. MASON Gen. M'g'r.

THE SIMPLEX ELECTRICAL CO

110 STATE STREET BOSTON

Digitized by Google

The Technology Review

Volume VIII. July, 1906 Number 3

Contents

FRONTISPIECE: The Bullard Memorial Window.

THE BULLARD MEMORIAL WINDOW

ALUMNI REPRESENTATION IN COLLEGE GOVERNMENT. LEONARD P. WOOD

THE INSTITUTE:

Corporation Notes.—Faculty Notes.—Appointments.—Graduation.—Fellowships.—The Rotch Prize.—William T. Sedgwick: Festschrift Celebration.—Department Notes.

THE UNDERGRADUATES:

Junior Week.—Senior Week.—The Classes.—Convocation.—Professional Societies.—Clubs.—Tech Show.—*Kommers*.—Athletics.

THE GRADUATES:

North-western Association.—Washington Society of the M. I. T.—M. I. T. Club of Cincinnati.—Technology Club of New Bedford.—Technology Club of Hartford.—Vermont Technology Association.—Technology Club of Northern Ohio.—News from the Classes.

BOOK REVIEW:

Adams's Mechanical Drawing for Technical Students.

Digitized by Google

ASSOCIATION OF CLASS SECRETARIES

OF THE

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

FREDERIC H. FAY, *Secretary* CHARLES F. READ, *Assistant Secretary*

Class Secretaries

ROBERT HALLOWELL RICHARDS, '68
HOWARD ADAMS CARSON . . '69
CHARLES ROBERT CROSS . . . '70
EDWARD WARREN ROLLINS . . '71
CALVIN FRANK ALLEN . . . '72
SAMUEL EVERETT TINKHAM . '73
CHARLES FRENCH READ . . . '74
EDWARD A. W. HAMMATT . . '75
JOHN RIPLEY FREEMAN . . . '76
RICHARD AUGUSTUS HALE . . '77
LINWOOD ORVILLE TOWNE . . '78
HARRY HUGHES CAMPBELL . . '79
GEORGE HUNT BARTON . . . '80
FRANK ELDEN CAME . . . . '81
WALTER BRADLEE SNOW . . '82
HARVEY STUART CHASE . . . '83
WILLIAM LEWIS PUFFER . . . '84
ISAAC WHITE LITCHFIELD . . '85
ARTHUR GRAHAM ROBBINS . . '86
EDWARD GALBRAITH THOMAS, '87
WILLIAM GAGE SNOW . . . '88
WILLIAM ELTON MOTT . . . '89
GEORGE L. GILMORE . . . . '90
HOWARD CARLETON FORBES . '91
WILLIAM ATKINSON JOHNSTON, '92
FREDERIC HAROLD FAY . . . '93
SAMUEL CATE PRESCOTT . . . '94
HAROLD KILBRITH BARROWS . '95
EDWARD STACEY MANSFIELD . '96
JOHN ARTHUR COLLINS, JR. . '97
CHAS.-EDWARD AMORY WINSLOW, '98
HERVEY JUDSON SKINNER . . '99
RICHARD WASTCOAT . . . . '00
RALPH HAMILTON STEARNS . . '01
FREDERICK HUSTON HUNTER . '02
WALTER HOLBROOK ADAMS . '03
CURRIER LANG . . . . . '04
ROBERT H. W. LORD . . . '05
THOMAS LESLEY HINCKLEY . '06
KARL WILLIS RICHARDS . . '07
HARRY WEBB, ... '08
WALTER WELLINGTON KING . '09

MAXWELL ALANSON COE, President, Institute Committee

HARRY WALTER TYLER . . . '84
Secretary of the Faculty

EVERETT MORSS . . . . . '85
President of the Alumni Association

ARTHUR GRAHAM ROBBINS . . '86
Secretary of the Alumni Association

GUY LOWELL . . . . . '94
President of the Technology Club

LEONARD THEAKER BUSHNELL '05
Secretary, The Technology Club

JOHN T. CHENEY . . . . . '03
Secretary, North-western Association M.I.T.

HAROLD O. BOSWORTH . . . '02
Secretary, Rocky Mountain Technology Club

HENRY SOUTHER . . . . . '87
President, Technology Club of the Connecticut Valley

ALLSTON SARGENT . . . . '98
Secretary, Technology Club of New York

PAUL WEEKS . . . . . '02
Secretary, Technology Club of Philadelphia

RAYMOND H. DANFORTH . . '98
Secretary, Pittsburg Technology Association

HENRY A. BOYD . . . . . '79
Secretary, Technology Club of Buffalo

FREDERICK W. SWANTON . . '90
Secretary, Washington Society of the M.I.T.

RICHARD W. PROCTOR . . . '94
Secretary, The Cincinnati M.I.T. Club

JOHN A. COLLINS, JR. . . . '97
Secretary, The Technology Club of the Merrimack Valley

CHARLES H. STRATTON . . . '00
Secretary, Annapolis Society of M.I.T.

LATIMER W. BALLOU . . . '95
Secretary, The Technology Club of R. I.

CHARLES F. WING, JR. . . . '99
Secretary, The Technology Club of New Bedford

GEORGE W. BAKER . . . . '92
Sec., Technology Club of Hartford, Conn.

REDFIELD PROCTOR, JR. . . . '02
Secretary, Vermont Technology Association

JACOB STONE, JR. . . . . '99
Secretary, The Technology Club of Minnesota

SIDNEY YOUNG BALL . . . . '03
Sec., The Technology Club of Northern Ohio

Committee on Publication

JAMES PHINNEY MUNROE, '82 ARTHUR AMOS NOYES, '86
WALTER BRADLEE SNOW, '82 EDWARD GALBRAITH THOMAS, '87
WALTER HUMPHREYS, '97

Digitized by Google

Digitized by Google

BULLARD MEMORIAL WINDOW
ERECTED IN THE GENERAL LIBRARY, ROGERS BUILDING
BY THE CLASS OF 1887
JUNE 4, 1906

Digitized by Google

HARVARD COLLEGE LIBRARY
AUG 10 1906
CAMBRIDGE, MASS.

The Technology Review

VOL. VIII. JULY, 1906 No. 3.

THE BULLARD MEMORIAL WINDOW.

A new feature was added to the physical aspect of the Institute upon Commencement Day in the memorial window given by the Class of '87 as a Memorial to the late Frederic Field Bullard. The gift was, both in its purpose and in its embodiment, a unique contribution. It is the first time any class has cared to take definite steps toward perpetuating the memory of one of its members, and it is also (with the exception of the restorations of the frieze in Huntington Hall and the drinking fountain in the hallway of Rogers) among the first attempts to minister to the somewhat starved æsthetic needs of the Technology environment.

That Bullard richly deserved this tribute of love and admiration goes, of course, without saying; and it is well that this piece of color and symbolism should stand for the education of that true "Tech" spirit which is to come. Bullard identified himself with the so-called spirit of the Institute in many ways, and, at a time when it was most needed, infused life into the solidarity of the undergraduate body. His work at the Tech Union is not yet forgotten, and, working as the coadjutor of President Pritchett, he built up the "Kommers" spirit which made that organization a success. The Tech Song Book was originated and edited by Bullard, and to it he gave many of his best compositions, including the "Stein Song," upon which his popular favor was based. Bullard's heroic work at the great Tech Reunion of 1904 is not yet forgotten, and it achieved special

Digitized by Google

emphasis from his death almost as soon as that work was over. No Tech student or graduate has ever had better claims to a public recognition of his worth to his Alma Mater.

The window, while simple, adequately typifies Bullard's phases of work as a student in the chemistry course, as the leader of the Tech Union, and as a musician. For a fitting eulogy the committee from his class chose the words once used by Kipling in his tribute to Wolcott Balestier,—"Simpleness and Gentleness and Honor and Clean Mirth." The window was designed and executed in the old manner by Harry B. Goodhue, of Cambridge, a personal friend of Bullard's, and who contributed, as his own share in honoring his friend's memory, far more work than was actually paid for.

In looking for a location for the window, the old Biological Laboratory, now the General Library, seemed to be best fitted, as being a central and general meeting-place for the students. The windows, topped by lunettes, are admirably adapted to such decoration, and the hint once given will doubtless be followed by other classes until this room becomes the natural memorial hall wherein may be erected other such offerings.

It was, indeed, with something of this in mind that the committee decided upon this form of memorial; for it has seemed to many that the grim and severe scientific aspect of the Technology might well be brightened and be made beautiful by the addition of some such color and interest. The Tech's stern discipline and its chill social atmosphere have begun to give way to less harsh ideals, and it is to be hoped that the Bullard window may have some such effect upon the material, as his life did upon the spiritual, needs of the Institute.

Digitized by Google

ALUMNI REPRESENTATION IN COLLEGE GOVERNMENT

A STUDY OF METHODS

The recent election by the Corporation of the first "term members," from nominees chosen by letter ballot of the alumni, completed the inauguration of alumni representation in the government of the Institute. In accepting the privilege of nominating nearly a third of the members of the Corporation, the alumni have assumed new and grave responsibilities. Most obvious of these is that of insuring that their nominees shall be invariably fit; and this is scarcely to be accomplished, permanently and with certainty, unless these representatives are chosen under a well-considered plan. For whatever assistance it may afford in judging of the plan adopted for the Institute, this study of alumni representation in the government of American colleges is here presented.

The data for this study were compiled during the latter half of 1905 by the Technology League for the information of the several bodies then studying plans of alumni representation in the government of the Institute. College publications, and correspondence and interviews with officers of the colleges and with representative alumni, furnished most of the information. An excellent article on "Alumni Representation in College Government," by Samuel H. Ranck, published in *Education* for October, 1901, giving the results of a study of this subject made in 1900 for the alumni of Franklin and Marshall College, and Mr. Ranck's personal correspondence on the subject, which he generously loaned, were freely used. The institutions studied, seventy-two besides the Institute, are intended to be fairly representative of American colleges, universities, and technological schools. They include colleges for each sex and for both sexes, old schools and young, and are in nearly equal numbers under denominational, non-sec-

Digitized by Google

tarian, and political (*i.e.*, city or State) control. In the accompanying tables is given a digest of the information obtained, for each college reporting any measure of alumni participation in its government.

Some participation of alumni is almost universal in American college government to-day. Only 7 out of 73 colleges are without it. Of these, 3 are under State control and 2 are private foundations established since 1890. This participation is often that of individuals chosen, not primarily as representatives of the alumni, and not as the result of any action by the alumni body, but as men conspicuously fit and devoted to the school. In one-third of the colleges reporting, the alumni participate in the government only in this informal way. (Colleges 43 to 66 in the tables.) Of these 24 colleges, 14 are under city or State control, two-thirds of all the colleges under political control being in this group. Whether under political or private control, the number of alumni on the governing boards of these colleges is often large, averaging for the entire group 35 per cent. of the membership of these governing bodies; and at Columbia University (No. 45), University of Iowa (50), University of Michigan (52), New York University (56), Rensselaer Polytechnic Institute (59), University of Virginia (61), and University of Wisconsin (64), alumni * constitute from one-half to nearly all of the trustees. This, however, is but the participation of individuals, not alumni representation, and does little to conserve the alumni interest, unlike that formal representation by representatives chosen by the alumni themselves, with which this inquiry is chiefly concerned.

Formal alumni representation has achieved its present wide adoption during the past forty years. First put into operation at Harvard College in 1866, it is to-day typical of the government of American colleges. Of the 73 colleges investigated, the alumni are now formally represented in the government of 42; and other colleges anticipate such representation when their alumni shall have become more numerous and more mature. Of the city and

* The word "alumnus" is used throughout in the broad sense of one who has been a student, not in the limited sense of a graduate.

Digitized by Google

State colleges, few have established alumni representation, since, in general, the incentives to its establishment are less and the difficulties of establishment are greater than in colleges not under political control. Of the colleges under private control, three-fourths have established some form of alumni representation.

This representation takes one of two general forms, according as the alumni representatives are members of the board of trustees or of a separate body. The former plan is the more usual, representation being on the board of trustees in 35 out of 41 colleges. (Colleges 1 to 27, 34 to 39, 41 and 42.) Except in a single college (13), these alumni trustees have the same powers and duties as other trustees. They have, in addition, the very important function of keeping the alumni authoritatively informed of the condition of their college, its aims, its problems, and its needs. At Rutgers this function is made an official duty, the alumni trustees being required to report in writing to the annual meeting of the Alumni Association.

The second plan, that of representation upon a separate body, is followed in six colleges. Of these Bowdoin College (29), Harvard University (32), and Tufts College (33) have boards of overseers, bodies co-ordinate with the trustees. The powers and duties of these boards of overseers are not uniform, and are not always well defined. In general, however, these are examining and reviewing bodies, scrutinizing the internal work of the college through their visiting committees, and exercising a veto over all important appointments and certain other acts of the trustees, though they may not originate business except by recommendation. At Harvard, where alumni representation has been longest established and where it is eminently successful from every point of view, practically all important acts of the President and Fellows require the approval of the Overseers. Representatives in the remaining colleges of this group have no such direct responsibility. At the University of Chicago (30) the representatives elect from the faculty a small minority of the members of the two bodies which direct the internal work of the school. At Franklin and Marshall (31) and at Bryn Mawr (40) representation is upon a purely advisory

Digitized by Google

body. In the former this arrangement was the choice of the alumni, who felt that in this way their influence would be greater than if they nominated a few members of the Trustees. In both cases these advisory bodies discuss college problems with the President of the college. They have considered chiefly educational and social questions, and many important changes in college policy have originated in these conferences. In addition to its Conference Committee of Alumnæ, Bryn Mawr is about to establish alumnæ representation on the Board of Trustees. This tendency sooner or later to give alumni representatives full responsibility is indicated by the fact that there are to-day but four out of forty colleges where these representatives do not vote as overseers or as trustees.

The choice between representation on the board of trustees, or the creation of a board of overseers or of an alumni advisory body, is largely a question of adaptation to the conditions peculiar to each case. A purely advisory body will probably seldom be adopted as other than a temporary expedient. Where the board of trustees is small, efficient, and permanent in its membership, the establishment of a co-ordinate alumni body, such as the Board of Overseers of Harvard, would seem the ideal plan. By this means the small board of trustees is not diminished in efficiency by increase in numbers, the alumni representatives have greater freedom of discussion, being unhampered by much of the routine business which the trustees must discharge, and important actions of the trustees are subject to review by an entirely independent body representing a great variety of professional and business interests and points of view. If, however, the board of trustees is large, as is the Corporation of the Institute, it must, for rapid and efficient work, delegate the administrative detail to a small prudential or executive committee. The board of trustees itself then becomes a reviewing and confirming body, of which the alumni representatives may well be members; and the addition of a responsible board of overseers would make the government needlessly complicated and cumbersome, since every important action would have to receive the successive approval of three bodies,—the executive

Digitized by Google

committee, the trustees, and the overseers. Again, the terms of the college charter and the desire to avoid the necessity of amending it may largely affect the choice. Thus at the Institute, whereas representation on the Corporation was established by an amendment to the by-laws of that body, a board of overseers, unless with very limited powers, could probably not have been established under the existing charter.

In number the alumni representatives constitute a minority of the members of boards of trustees, but comprise the entire active membership of boards of overseers and of purely advisory bodies. The few exceptions are found where representatives are chosen for life (4, 21, 29). At the Institute 28 per cent. of the members of the Corporation will be alumni representatives. In but one-fourth of the colleges having short term alumni trustees is the proportion as great or greater.

The term of office of alumni representatives is usually three to six years. Compared with election for life, this short term has many advantages. The short term permits of bringing to the service of the college many more of the strongest of her sons. By the wider distribution of representatives which this greater number makes possible, many more of the alumni may be kept in touch with the college through a member of the government personally known to them. The short term makes representatives responsible to the alumni who elect them, in that they need not be returned unless they have served the college well. This makes them more truly alumni representatives, and furnishes an incentive for the alumni to watch their representatives' work. Finally, and not the least important, the short term involves regular and frequent balloting, itself an effective agency for keeping the alumni interest keen. In thirty-three out of forty colleges the representatives are chosen for short terms. Of the seven in which representatives are chosen for life, one reports that a large number of alumni participate in the voting, while six either do not report the number or report it to be very small. In two of these latter the plans of representation are now undergoing revision because of this lack of alumni interest.

Digitized by Google

Habitual re-election of representatives may, in part, neutralize the advantages of the short term; and in many colleges the tendency to such re-election is strong. To prevent the indefinite return of a willing candidate, without his formal rejection by the alumni or the trustees, many colleges make a representative ineligible for immediate re-election after two or three successive terms. At the Institute a representative may not be re-elected for at least one year after the expiration of his last term.

The alumni choice is usually effective as an election, whether it be actually an election or technically a nomination, only a single candidate being offered for each vacancy, with the understanding that the trustees will elect this candidate. Less frequently multiple candidates are offered, and the trustees may or may not agree to fill the vacancy from these candidates. The tendency, however, is strongly in favor of direct election by the alumni, or, if this is impracticable without change of charter, of requiring the alumni to present but one candidate for each vacancy. Thus, out of 35 colleges in which the alumni representatives are voting members of the overseers or of the trustees, the alumni ballot "nominates" multiple candidates in 8, single candidates in 10, and elects outright in 17. Considering nomination of a single candidate as equivalent to election, we have "nomination" in 8 colleges, and "election" in 27.

Where the alumni ballot merely nominates multiple candidates from among whom the trustees choose, it is always uncertain whether the first choice of the alumni will be confirmed. The knowledge that their choice might be in a measure nullified has in some cases seriously diminished the interest of the alumni and their participation in the voting. Of the colleges where this uncertainty exists, but six have had representation long enough for the taking of a second alumni vote. In two of the six, the vote continues large after many years. One reports a persistent decline in the number voting from 66 per cent. to 20 per cent. in the past five years, and in three the vote is very small.

In methods of conducting the alumni ballot, the greatest diversity prevails. While this is especially true of the methods of making

Digitized by Google

the preliminary nomination, these methods can, with few exceptions, be classified under two heads: nomination by the alumni at large and nomination by committee. Nomination by the alumni at large is the method most widely used. Usually, this is by a preliminary ballot, on which each elector suggests one or more candidates. Of the candidates suggested in this way, in some cases a prescribed number of those receiving the largest preliminary vote, in other cases all those receiving a prescribed number of votes, are placed on the final ballot.

Nomination by the alumni at large has given good results where the alumni organizations are alert and the mass of the alumni well informed. On this preliminary ballot the vote is, however, always scattering. Thus, at Yale, for a single vacancy as many as a thousand names have often been suggested in this way, from three to twelve of which have received the twenty-five votes necessary to place them on the final ballot. Elsewhere, not infrequently, only a single candidate or set of candidates has been nominated. In exceptional cases, no candidate has received the requisite number of votes (usually ten to twenty-five) and the nomination has failed. Bowdoin College (29) and Stevens Institute of Technology (41) have guarded against this contingency by requiring a committee to make the nominations, if nomination at large fails.

There are other disadvantages of nomination at large besides its uncertainty. It establishes no organization for investigating the fitness of candidates, whose choice is likely to be determined more by their personal popularity or their conspicuous position in public life than by any just appreciation of their probable usefulness as trustees. It provides no mechanism for informing the electors of the qualifications of the several candidates. As a consequence, the elector, knowing personally few or none of them, must often vote in the dark. Its furnishes no means of regulating the geographical distribution of representatives, one or two active local organizations being able, in some instances, to monopolize the representation. As the preliminary vote is scattering, it permits a small clique, often as few as a dozen men, to secure the nomination of any one they choose.

Digitized by Google

The undoubted success in certain colleges of nomination at large is a tribute rather to the intelligent devotion and good sense of their alumni than to the method. In these colleges, groups of alumni take upon themselves the functions of nominating committees, seeking out good men and seeing to it that they receive the nomination. In a few cases, as at Yale, these groups go further, and conduct active campaigns on behalf of their candidates, circularizing the alumni with biographical sketches and lists of influential indorsers. While these methods have succeeded well in individual instances, they are obviously not always to be trusted.

Nomination by committee is the method adopted at Amherst (2), Dartmouth (7), Rutgers (20), Williams (25), Harvard (32), Tufts (33), the Institute (42), and at all of the colleges for women (34 to 39). Usually, it is left to the discretion of the committee to secure as representative a distribution of candidates, geographically and by classes, as is consistent with efficiency. Thus at Dartmouth it is the established custom to choose the candidates for successive years from different geographical districts. In several colleges, on the other hand, special machinery is provided to insure this distribution. At Mount Holyoke (35), Smith (37), and Vassar (38) each local alumnæ society either suggests names to the central nominating committee or is formally represented on that committee; and at Williams (25) the committee, which reports the day after its appointment, is assisted, but not bound, by the suggestions of a nominating ballot taken the year before. Again, the committee's nominations may be subject to review before the final ballot is made up. At Harvard (32), at Radcliffe (36), and at Wellesley (39) the nominating committee merely suggests names on which a preliminary mail ballot is taken, there being provision in each case for independent nominations in connection with this preliminary ballot; and at the Institute the committee's list must be published three weeks before the closing of nominations, during which interval independent nominations may be filed. In each case these independent nominations are placed on the final ballot. Some such provision for independent nominations, after scrutiny of the committee's candidates, appears to meet the objections to nomination by committee.

Digitized by Google

The franchise is commonly limited to graduates: in exceptional cases, as at the Institute, non-graduates who have become members of the Alumni Association may vote. In a few cases, as a test of interest in the college, the payment of a fee is required. The frequent restriction of the franchise to graduates of one to five years' standing is designed to insure an electorate of greater maturity and broader outlook,—an electorate better able, incidentally, to see classes, factions, and fraternities in true perspective relative to the college. In those cases where personal ambition and fraternity and factional strife are reported to have marred the alumni balloting, not only was there no central body to sift candidates and to report upon their qualifications, but voting was permitted immediately after graduation. At Harvard, Yale, Tufts, and the Institute the interval between graduation and the acquisition of the franchise is five years.

More than by any restriction of the franchise, however, or any system of nomination, the continued choice of fit representatives is safeguarded by a large and intelligent vote. The most serious problem of alumni representation to-day is to secure a vote which shall represent the deliberate judgment, based upon adequate knowledge of the candidates, of the electorate as a whole. To vote intelligently, the elector must ascertain the qualifications of the several candidates among whom he is to choose. This, if the alumni body is large and widely scattered, he can seldom do, and, failing, he must vote blindly or not at all. To make available to each voter information which shall be both adequate and impartial is a difficult and delicate task; but, to insure a wise choice of representatives, this must, in some way, be done. In a number of colleges a brief biographical sketch, prepared by some central body, usually the nominating committee, is mailed to each voter with his ballot. This is done, among other colleges, at Harvard and at the Institute.

Alumni representation has been adopted not only at the request of alumni bodies, but often on the initiative of the trustees themselves. While in many cases an amendment to the college charter has been found desirable, more often representation has been estab-

Digitized by Google

lished by action of the trustees alone. Two difficulties are likely to arise: the charter may restrict to the trustees the power to elect their own successors and it may make the term of office of trustees for life. At Dartmouth (7) and at Rutgers (20) both of these difficulties have been met without modification of the charters, the first by inviting the alumni to "nominate" one candidate for each vacancy with the tacit understanding that the trustees will elect this nominee, the second by requiring each candidate, before his name is put upon the alumni ballot, to agree that, if elected, he will resign at the end of his term. In both cases these devices have served their purpose well.

While the plan of alumni representation in each case finally adopted will necessarily be a development to suit the conditions of that college, the experience of the past and the tendencies of the present point to a fairly definite type. The essential features of this type are: full responsibility imposed upon the alumni and upon their representatives; the certainty that the alumni choice will be effective; regular annual elections by mail ballot; representatives chosen for short terms; nominations made or guided by a responsible central body; and the voter supplied with such impartial information as will enable him to make an intelligent choice. Judged by this standard, the plan adopted by the Institute is, in its main lines, open to but one criticism: the alumni choice is not conclusive, since, of the five candidates annually chosen by ballot of the alumni, the Corporation must reject two. That a self-perpetuating board of trustees charged with large responsibilities should hesitate to delegate completely to the untried alumni a function so important as the choosing of one-third of its members is but natural. If the alumni choice is eventually to be made conclusive and this final selection by the Corporation waived, it must be shown that this precaution is unnecessary. It is for the alumni to prove that it is unnecessary by choosing only such candidates as are eminently fit.

LEONARD P. WOOD, '01.

Digitized by Google

	Conduct of Alumni Balloting			
N ed by.	Make-up of Official Ballot.	Information regarding Candidates sent out with Ballot.	% of Electors Voting.	Remarks.
N THE BOARD OF TRUSTEES.				
of ation. made eting.			I	Established by amendment to the Charter.
com-	3 or more names for each vacancy (7 formerly required).	A committee reports on qualifications.	I	About 20%	Established by Act of Legislature which body delegated to the Alumni powers it had previously exercised. Regulations governing alumni balloting adopted by Alumni Association, and ratified by Trustees except as prescribed by Legislature. Changes in these regulations require joint action of Trustees and Alumni Association.
for the Trustees. Since 1898 the Convocation (all graduat isiting Committees of the following departments, namely: ts. Whenever there is a vacancy in the representation on es fill the same from the representatives of the Alumni on one-fifth to one-half the membership of the Visiting Comm				
, 15	All candidates of prescribed sects receiving 15 votes on preliminary ballot. Any other eligible may be voted for on final ballot.	No information has been furnished. Plan now under discussion for having a central committee investigate and report upon qualifications of candidates.	I	Small.	Established by resolution of the Board of Trustees. Of the 65 Trustees elected since the establishment of alumni representation, 60 have been nominees of the Alumni, though not in all cases the first choice.
2 Ball- lim- re- on	For each vacancy the 2 names receiving highest vote on second preliminary ballot.	No committee to investigate qualifications of candidates; no information furnished.	H		Established by resolution of the Board of Trustees. Reported that alumni representation creates a lively interest among the Alumni.
10	All candidates receiving 10 votes on preliminary ballot. Any other eligible may be voted for.	No committee to investigate; no information furnished officially. Friends of candidates frequently send out information.	H	55% to 20% according as elections is or is not contested.	Established by amendment to the Charter. Details of alumni balloting prescribed by the alumni, subject to the approval of the Trustees. Reported that alumni trustees are doing much to protect alumni interest and to keep it alive.
ap- lent ion, An-	5 names for each vacancy. In successive years candidates chosen from different geographical districts.	Information as to qualifications furnished by committee.	H	41%	Established by resolution of Board of Trustees. Reported that the plan works admirably.
t Anual Meeting vote on the 2 highest candidates for each					

Digitized by Google

Digitized by Google

—COLLEGES

	Conduct of Alu
of Official allot.	Informati Candida with Ba

)F TRUSTEES.—

	No comm tigate q candida
:eiving ma- : (on prelimi- ot) placed on ot."	No comm tigate q candida mation
ttes receiving on prelimi- ot.	No comm tigate no inf nished.
vacancy the tes receiving te on prelimi- ot.	Informati each c nished Election Sec'y others nual Me
tes receiving on prelimi- lot, usually 20 for the 2	Executive Alumni vestigat on qu candida
proposed ap- the ballot, 2 or 3.	No comm tigate; furnish
largest vote inary ballot.	No comm tigate q candida graduat tion, stated c
or each va- Any other eli- be voted for.	
ndidates for ancy.	

at Annual Meeting vot

Digitized by Google

Digitized by Google

r.—CC

ıp of Offi
Ballot.

TRU

candidat
25 vote
nary ba
ıer eligibl
d for.

ates for e
members
Medical
prelimin
Plurality

candidat
20 votes o
nary ballo

for eac
No pro
pendent

candida
7 votes o
y ballot.

Digitized by Google

Digitized by Google

GENERAL INSTITUTE NEWS.

CORPORATION NOTES

The regular meeting of the Corporation on June 1 was distinguished by the first appearance of the term members elected at the meeting in March. All the new members were present excepting Mr. Locke, who was absent in California because of ill-health. Pleasant features of the day were a luncheon given to the term members and the Executive Committee of the Corporation, at the University Club, by President Morss of the M. I. T. Alumni Association, and a reception given by President Pritchett and Mr. Charles A. Stone, at Mr. Stone's house on Beacon Street, in the evening. To the latter were invited all the members of the Corporation and Faculty of the Institute.

At the meeting of the Corporation the candidates for degrees of Masters of Science and Bachelors of Science, as presented by the Faculty, were formally awarded degrees. The list is given on page 332. Various reports of visiting committees were presented and placed on file. The resignations of Mr. Thornton K. Lothrop as a member of the Corporation and of Mr. Howard Stockton as a member of the Executive Committee were accepted with expressions of regret. A number of promotions within and appointments to the instructing staff, reported from the Executive Committee and noted on page 314, were confirmed.

The President pointed out that the question whether the Institute should remain in its present location by the purchase of additional land or should remove to a quieter part of the city where it could acquire a larger tract of land must be settled at an early date. It was therefore voted that the problem be referred to a special committee made up of the Executive Committee, of five other members of the Corporation to be appointed by the President, of the chairman of the Faculty, and of the president of the Alumni Association, to report in detail to the Corporation at its meeting in Oc-

Digitized by Google

tober. The President subsequently appointed upon this committee Messrs. Jackson, Felton, Cabot, Munroe, and Main.

FACULTY NOTES

At the annual meeting of the Faculty, May 2, Professors Tyler and Burton were re-elected Secretary and Dean, respectively. There were no important changes in the list of standing committees.

A significant and important step has been taken by the Faculty in acting favorably on Professor Swain's recommendation for the reduction of the present modern language requirement in Course I. and Course XI. from two years to one. This has enabled him to transfer Applied Mechanics to an earlier period in the course, extending from the middle of the second year to the middle of the third. Additional time is also devoted to a number of professional studies, while the assignment for English and History in the second year is materially in excess of that in other courses. A committee has been appointed to consider and report on the general question of the allotment of time which may be released by future reduction of the present Modern Language requirements in any course.

The list of general options in the third year has been increased by the addition of courses in American Literature: National Ideals, and on the Bible as Literature.

An interesting conference with teachers from secondary schools was held by members of the Faculty, at the Technology Club, on Saturday, May 19. There was an extended discussion of results of recent entrance examinations, particularly in mathematics, and of various matters in connection with the administration of entrance examinations.

A valuable exhibit of the Institute's work in Biological and Sanitary lines has been made, under the direction of Professors Sedgwick and Winslow, at the recent meetings of the American Medical Association and the American Waterworks Association.

Professors Burton and Peabody attended the recent jubilee meeting of the great Society of German Engineers at Berlin, and report a most interesting occasion. Professor Burton was the official

Digitized by Google

delegate of the Institute to the celebration. The following informal letter to Dr. Pritchett is of interest:—

BERLIN, GERMANY, Thursday, June 14, 1906.

Dear President Pritchett,—I arrived in Berlin Sunday, June 10. On Monday I presented my credentials, and was introduced to the principal officials, who were all most cordial, and seemed to know all about the Institute. Monday evening, at the banquet, I was seated between the Rector of the Charlottenburg school and the delegate from Glasgow University. Opposite me was the French delegate from the Schools of Mines in Paris. My German conversational abilities are very limited; but all spoke English near me, excepting the Frenchman, and I had occasion to help him out, for he understood neither German nor English. Professor Peabody and his wife were at the same table, also Professor Hollis from Harvard.

On Tuesday, after listening to scientific papers, I visited the laboratories of the Hochschule and the Government standardizing laboratories, and in the evening attended the opera, "Figaro's Hochzeit," tickets having been presented by the German Engineers.

On Wednesday scientific papers in the morning, Hochschule in the afternoon, and the workshops of the Allgemeine Elektricitätsgesellschaft in the evening.

Professor Peabody is in Europe to study the technical schools and the shipbuilding yards on the other side of the Atlantic. He went directly from Liverpool to Spezia in Italy, where there is an experimental tank for testing ship models. He is now making a tour of the technical schools of Germany, France, and Great Britain, and will make comparisons between the different methods of construction in vogue in the three countries. Professor Peabody is not expected to return to this country before the end of September.

The following members of the Faculty are also abroad for the summer: Professors Bartlett, Despradelle, Hovgaard, Moore, Smith, Sumner, Goodwin, and Lodge.

The Institute has been represented by members of the Faculty at the recent meetings of the American Association of Civil Engineers at the Thousand Islands, the Society for the Promotion of Engineering Education at Ithaca, the National Association for Testing Ma-

Digitized by Google

terials at Atlantic City, and the American Society of Electrical Engineers at the same place.

Mr. T. C. Hu, B.S., M.C.E., and Mr. H. Tsing were the guests of the Institute on April 20. Mr. Hu and Mr. Tsing are Provincial Commissioners from China, and are inspecting the American colleges. Mr. Tsing is president of the "Imperial Szechuen University" of China, and Mr. T. Hu is the chief engineer of the Hankow and Szechuen Railroad of China. Mr. Tsing is a graduate of Cornell University in the class of 1905.

APPOINTMENTS

The new programme, issued early in June, announces the following appointments: Professors Crosby, Woods, and Goodwin are promoted to full Professors; Professors Gill, Robbins, Laws, Fuller, Johnston, Hough, and McKibben to Associate Professors; Instructors George in Mathematics, Robinson in English, and Locke in Mining and Metallurgy become Assistant Professors. The following appointments of Instructors are also published:—

Myron W. Dole in Mechanical Engineering, Raymond Haskell in Theoretical Chemistry, Addison F. Holmes in Mechanical Engineering, Guy W. Eastman in Physics, Charles Field, 3d, in Organic Chemistry, Gerald F. Loughlin in Geology, Champion H. Mathewson in Analytical Chemistry. The new Assistants are as follows: Herbert A. Bailey in Technical Analysis; S. H. Grauten, Charles D. Richardson, and Edward B. Rowe in Electrical Engineering; James I. Banash, Herbert P. Hollnagel, and Claude S. McGinnis in Physics; John F. Norton in Organic Chemistry; George F. White and Frederick H. Willcox in Analytical Chemistry; Burton W. Kendall in Electro-Chemistry.

GRADUATION

The graduating class of 1906 numbered not less than 277, distributed by courses as follows: Civil Engineering, 46; Mechanical Engineering, 69; Mining Engineering and Metallurgy, 38; Architecture, 22; Chemistry, 21; Electrical Engineering, 37; Biology, 2;

Digitized by Google

Physics, 7; Chemical Engineering, 10; Sanitary Engineering, 6; Naval Architecture, 19.

The class of 1906 numbered at entrance 457, of whom 177 are included in the above

The geographical distribution of the graduates is as follows:—

California	5	Pennsylvania	12
Colorado	6	Rhode Island	2
Connecticut	5	Texas	4
District of Columbia	2	Vermont	4
Georgia	1	Virginia	2
Illinois	10	Wisconsin	7
Indiana	1		270
Iowa	1		
Kansas	1	*Foreign*	
Maine	7	Brazil	1
Massachusetts	154	Cuba	1
Michigan	1	Hawaii	1
Minnesota	1	Ireland	1
Missouri	9	Mexico	1
New Hampshire	8	Porto Rico	2
New Jersey	4		7
New York	15		
Ohio	5	Total	277
Oregon	3		

The somewhat exceptional size of this class may naturally be connected with the fact that it entered the Institute just ahead of the increase in tuition fee and the advance in entrance requirements.

FELLOWSHIPS

D. F. Comstock, '04, continues his study in Europe as a Savage Fellow; W. K. Lewis, '05, has been awarded Swett Fellowship; R. C. Tolman, '03, has been awarded Dalton Fellowship; G. W. Eastman, '04, H. T. Kalmus, '04, and E. W. Washburn, '05, have been appointed Austin Fellows. M. H. Whitehouse, a fifth-year

Digitized by Google

student, has been awarded the travelling scholarship in Architecture offered by Guy Lowell and others.

THE ROTCH PRIZE

The Rotch prize to regular students in Architecture has been divided between A. A. Blodgett, '06, and J. T. Wrinkle, '06, that to special students between F. C. Lebenbaum and R. G. Stebbins.

WILLIAM T. SEDGWICK—FESTSCHRIFT CELEBRATION

Thursday, June 14, at the Hotel Westminster, Boston, a dinner was given to Professor W. T. Sedgwick, head of the Biological Department, by his former students, in honor of the twenty-fifth anniversary of the receipt of his doctor's degree from Johns Hopkins University.

Seventy persons were present, over sixty of whom have studied in the Biological Department since Professor Sedgwick became its head in 1883. Among the latter were Professors E. O. Jordan and A. P. Mathews, of the University of Chicago; Professor Severance Burrage, of Purdue; Professor G. N. Calkins, of Columbia, and Messrs. G. W. Fuller, G. C. Whipple, and Allen Hazen, of New York; M. O. Leighton, of the United States Geological Survey; Dr. E. C. Levy, city bacteriologist of Richmond, Va.; F. F. Longley, superintendent of the Washington filter plant; W. S. Johnson, of the Massachusetts State Board of Health; B. R. Rickards, city bacteriologist of Boston; Dr. Augustus Wadsworth, of the College of Physicians and Surgeons, New York; Dr. F. S. Hollis, of the Yale Medical School; E. E. Lochridge, engineer of the Springfield Water Department; Dr. F. W. White, of Boston; Dr. J. A. Rockwell, Jr., of Cambridge; Edward G. Gardiner and Robert S. Weston, of Boston; Dr. Robert P. Bigelow; Professor Theodore Hough, of Simmons College; Professor B. E. Stone, of Amherst; Professors S. C. Prescott and C.-E. A. Winslow and Earle B. Phelps, of the Institute; and Mr. S. D. Gage, of the Lawrence Experiment Station.

Digitized by Google

There were also present, as guests, former President D. C. Gilman, of Johns Hopkins; Professor S. F. Clarke, of Williams; President Henry Lefavour, of Simmons College; Dr. L. P. Kinnicutt, of the Worcester Polytechnic Institute; and Dr. Francis H. Williams, of the Corporation of the Massachusetts Institute of Technology.

Dr. Calkins acted as toastmaster. President Gilman, who conferred Professor Sedgwick's doctor's degree in 1881, and Professor Clarke, who was a student with him, spoke of the early days of Johns Hopkins University, to which the Biological Department of the Institute, through Professor Sedgwick, owes much of its inspiration. G. W. Fuller, Professor E. O. Jordan, Professor A. P. Mathews, Mrs. Stanley McCormick, and Professor C.-E. A. Winslow made brief addresses, expressing the regard and affection of the former students of the department for its head.

The evening closed with a speech by Professor Sedgwick himself, in which he expressed his appreciation of the occasion, and spoke of his connection with the great university at Baltimore and the great technical school at Boston, and of the duty which now rests upon the Biological Department of the Institute to train men for the conduct of the sanitary reforms which are spreading so rapidly all over the Union.

The chief event of the occasion was the presentation of a volume of Biological Studies, "dedicated by his pupils to William Thompson Sedgwick, to express their regard and admiration for him as a friend, teacher, investigator, and public-spirited citizen, and also to affirm their loyalty to the ideals for which he has always stood." The volume, which has been prepared in secret, and was a complete surprise to its recipient, has been published at the University of Chicago press, under the editorship of Professor E. O. Jordan. It contains nineteen original contributions to biology and sanitary science, the authors and titles being as follows: Gary N. Calkins, "Paramecium Aurelia and Paramecium Caudatum"; Harrison G. Dyar, "The Life-history of a Cochlidian Moth, Adoneta bicaudata Dyar"; George W. Fuller, "Experimental Methods as applied to Water and Sewerage Works for

Digitized by Google

Large Communities"; Marshall O. Leighton, "The Futility of a Sanitary Water Analysis as a Test of Potability"; George C. Whipple, "The Value of a Pure Water"; A. P. Mathews, "A Contribution to the General Principles of the Pharmacodynamics of Salts and Drugs"; Percy G. Stiles and Carl S. Milliken, "An Instance of the Apparent Antitoxic Action of Salts"; Edwin O. Jordan, "Experiments with Bacterial Enzymes"; C.-E. A. Winslow and Anne F. Rogers, "A Statistical Study of Generic Characters in the Coccaceæ"; Samuel C. Prescott, "The Occurrence of Organisms of Sanitary Significance on Grains"; Stephen DeM. Gage, "A Study of the Numbers of Bacteria developing at Different Temperatures and of the Ratios between such Numbers, with Reference to their Significance in the Interpretation"; C.-E. A. Winslow and E. E. Lochridge, "The Toxic Effect of Certain Acids upon Typhoid and Colon Bacilli in Relation to the Degree of their Dissociation"; Earle B. Phelps, "The Inhibiting Effect of Certain Organic Substances upon the Germicidal Action of Copper Sulphate"; Daniel D. Jackson, "A New Solution for the Presumptive Test for Bacillus Coli"; Henry S. Ayers, "B. Coli in Market Oysters"; Augustus Wadsworth, "Studies on Simple and Differential Methods of Staining Encapsulated Pneumococci in Smear and Section"; Arthur I. Kendall, "An Apparatus for Testing the Value of Fumigating Agents"; Theodore Hough and Clara E. Ham, "The Effect of Subcutaneous Injections of Water, Ringers Fluid, and 10 Per Cent. Solution of Ethyl Alcohol upon the Course of Fatigue in the Excised Muscles of the Frog"; Burt R. Rickards, "Notes on a Case of Apparent Pulmonary Tuberculosis associated with the Constant Presence of Diphtheria-like Organisms in the Sputum."

DEPARTMENT NOTES

MINING

The Summer School of the Mining Department this year visited the mines around Lake Superior. The party, in charge of Professor Richards, '68, and Mr. Locke, '96, including Hayden, Hay-

Digitized by Google

ward, and Heywood, '06, Hastings and Mayer, '07, Tse and Wen, '08, left Boston on the evening of June 6, arriving at Niagara June 7, where visits were made, through the kindness of Mr. E. G. Acheson to the Acheson Graphite Works, and through the kindness of Mr. Rogers, to the Carborundum Works. The methods of manufacture were gone over carefully. Then the Niagara Falls Power Company's two plants, with 50,000 H. P. and 60,000 H. P., respectively, were inspected. The afternoon was spent in seeing the Falls, Cave of the Winds, and the Gorge. The party then went by steamer from Buffalo to Cleveland, where they spent a few hours, going to Ashtabula by train.

Here, through the kindness of Mr. F. B. Richards, '84, of M. A. Hanna & Co., and of Mitchell & Co., they were furnished free transportation from Ashtabula to Duluth on the fine ore steamer "John J. Albright." The voyage was most delightful. One of the boys said it was as good as an ocean voyage, with many things to see thrown in. The Detroit River, Lake St. Clair, St. Clair River, are all most entertaining; also the beautiful park on Belle Isle, above Detroit, and the interesting colony at St. Clair Flats.

The lake shipping is most interesting. The sailing vessel is completely replaced by the various designs of steam freight boats. The much-talked-of whaleback has almost left these waters for the Atlantic. The lake type has supplanted all else. The largest of these are 600 feet long, with 12,000 tons' burden, making 10 knots an hour loaded, 12 empty, burn about 15 tons of coal in twenty-four hours. They can load in three hours and discharge in five hours.

Among the pleasure craft, rowing and sailing are almost lost arts. The motor-boats are here for everything,—for pleasure and for business. To be sure, sail-boat racing on water and on ice is still practised on Lake St. Clair.

The St. Mary's River and the Sault Ste. Marie, with all their activities, canals, and beauty of scenery, are most attractive. At the time of writing the party is here. The remainder of the trip includes Mesaba, Gogebic, and Menominee iron regions, the Houghton copper region, the "Soo" iron furnaces and electric

Digitized by Google

furnaces, and the Sudbury nickel mines and works. Members of this party are everywhere receiving the same kindness and hospitality that others have in the past, and they are doing their best to merit the confidence of their hosts.

The number of mining students who attended the Summer School was small, probably partly on account of the prosperity of the country at the present time, which gives vacation employment to the students either through their own solicitation or through the mining department.

The mining graduates have found places very rapidly this spring, there having been more places than men. That a few of the men are still not taken up is due to the fact that the particular line that they sought has not come to them.

A few changes are on the docket for the mining department. One of the chief is that the room used as a museum, under the old secretary's office, will have its floor raised a few feet, making two stories, one above the other. Professor Hofman and the library will be located in the upper, and the lower story will be devoted to metallography.

ARCHITECTURE.

M. H. Whitehouse, of Portland, Ore., a fifth-year student of the Department of Architecture, was awarded the travelling scholarship offered by Guy Lowell and others to the fifth-year man who should best work out a certain problem in design. Miss Ida A. Ryan was awarded first mention, and L. C. Clarke, Jr., second mention. The problem was a club-house and garage for a State automobile club. The value of the scholarship is $1,200, to be expended in one year. The only conditions are that the winner shall sail for Europe by the 1st of September, and remain abroad a complete year, unless otherwise authorized. The programme for study abroad will be prepared in consultation with the Department of Architecture.

The nine competitors were given each a separate room in the middle of March, and since that time have worked separately without seeing one another's drawings until the competition was fin-

Digitized by Google

ished. The drawings all showed great originality, and according to Professor Chandler were of exceeding merit.

Every year the Boston Society of Architects offers two prizes of $50 each, one to the regular and one to the special student who best solves a chosen problem in the fourth-year course in Architecture. This year the problem was a Monumental Fireplace in a building for the Hague Tribunal. The prizes were awarded to William Rasmussen, special, and J. T. Wrinkle, regular student; and the following men were mentioned in order of excellence,—Samuel Gideon and J. H. Cady of the specials and Charles G. Loring, A. A. Blodgett, and F. Logan for the regular students.

BIOLOGY.

The donor of the Sanitary Research Laboratory and Sewage Experiment Station has contributed a further sum of $5,000 for continuing the work begun in 1903. An elaborate report of the results of the investigations of the first two years has been prepared by Professor C.-E. A. Winslow, biologist-in-charge, and Mr. E. B. Phelps, research chemist and bacteriologist, and will soon be published under the auspices of the Hydrographic Bureau of the United States Geological Survey.

CHEMISTRY AND CHEMICAL ENGINEERING

The third of the biennial Summer Courses in Industrial Chemistry began on June 6. The students taking part in the trip were Messrs. Moses, Mahr, Gonder, and Draper, of Course V., and Messrs. Peabody, Eisenhart, Lowe, Moody, Wells, and Fleming, of Course X., all members of the Junior Class. The course was, as usual, under the direction of Professor Thorp, and Professor Talbot accompanied the party, with the exception of the first half-day. The visits began on the afternoon of the 6th, at the sugar refinery of the Standard Sugar Refining Company in Boston, where an opportunity was afforded to see the processes involved in the purification of the crude sugar and also the methods of control employed. On

Digitized by Google

the morning of the 7th, the party left Boston for Pawtucket, where they visited the works of the B. P. Clapp Ammonia Company in the forenoon, inspecting the processes for the preparation of pure, concentrated aqueous ammonia from gas liquors. The afternoon was spent at the works of T. P. Shephard & Co., where Mr. E. D. Pearce conducted the party through the plant in which sulphuric acid is manufactured both from sulphur and from pyrites. A night on the Fall River Line boat and a short ride brought the party to Newark, where the forenoon was spent in visiting the establishment of the Central Stamping Company. Mr. T. M. Leman (1901), superintendent of the enamelling department, explained the mechanical and chemical operations involved in the production of agate ware and other similar utensils. The afternoon of the 8th was spent at the extensive plant of the American Smelting and Refining Company at Perth Amboy, where the metallurgy of the lead, silver, and gold-bearing copper ores and the electrolytic refining of copper were shown under the able guidance of Mr. F. F. Colcord ('98). Messrs. Marston, Baum ('04), Gallop ('05), and Skowronski ('04) also gave the party a cordial greeting.

The evening of the 8th found the party in its Philadelphia quarters at Green's Hotel. The visits made in the vicinity of Philadelphia and the processes inspected were the following: Alexander Young Company, whiskey distillery; J. T. Lewis & Bros. Co., manufacturers of white lead, litharge, red lead, orange mineral, mineral pigments, and linseed oil; R. C. Remmey Sons Company, chemical pottery; Whitall, Tatum Company, Millville, N.J., glass works, making of bottles in great variety, carboys, beakers, flasks, etc.; Atlantic Refining Company, distillation and refining of crude oil and preparation of gasoline, burning oils, lubricating oils, and paraffine; Point Breeze Works of United Gas Improvement Company, manufacture and purification of both coal and water gas; Welsbach Light Company, Gloucester City, N.J., the manufacture of Welsbach lighting mantles; Joseph Campbell Company, Camden, N.J., preparation of canned soups, ketchup, salad dressing, etc.; Burke Brothers, tanning of goatskins and finishing of high-grade kid; Dill & Collins Company, preparation of soda pulp and manufacture of calendered papers.

Digitized by Google

On the afternoon of the 18th, the party left Philadelphia for Wilmington, where visits were made to the two mills of the Joseph Bancroft & Sons Company. Mr. D. M. Bates ('96) acted as host, and demonstrated the operations of the bleachery, the mercerizing process, and the dye-house. Baltimore was reached in the early evening, and became the headquarters for the remainder of the trip. The establishments visited near Baltimore were: Christopher Lipps Company, soaps and glycerine; Baugh & Sons Company, fertilizers; D. F. Haynes & Son, pottery, including the decoration of the ware; Carr-Lowry Company, glass works; Maryland Steel Company, complete metallurgical process from the iron ore to the finished rail (and also inspection of the ship-yards); Sharpe & Dohme, pharmaceutical preparations in great variety; Fred Bauernschmidt, beer brewery.

At each of these establishments no effort was spared to make the visit one of profit to the students, and in many instances the inspection of the plant was preceded by a talk by some one in authority upon the processes involved. The party was most delightfully entertained at luncheon by the Joseph Campbell Company, with Dr. J. T. Dorrance ('95) and John R. Odell ('03) assisting the host; also by the Welsbach Light Company, the Atlantic Refining Company, the Whitall, Tatum Company, and the Maryland Steel Company, the last through the courtesy of Mr. F. W. Wood ('77), the president. Mr. N. M. Randall ('85) also devoted himself to the entertainment of the party.

The usual evening conferences and discussions were held by Dr. Thorp, as far as they were needed, and considerable time was also available for visits to the pleasure resorts near Philadelphia and Baltimore. The trip, as a whole, was a marked success, and the courtesies extended by the manufacturers, which made it possible, are heartily appreciated by all concerned.

The following are the changes in the instructing corps in chemistry which have become effective or will soon become so: Professor Gill is promoted from Assistant to Associate Professor of Technical Analysis; Dr. L. W. Smith resigns to accept a teaching position elsewhere; Messrs. E. A. Barrier, N. E. Tousley, H. L. Jackson,

Digitized by Google

and Dr. R. B. Earle have resigned to accept technical positions; Mr. G. R. Taylor resigns to become a graduate student in biology, and Mr. R. S. Gifford to become graduate student and part time Assistant in Theoretical Chemistry; Mr. W. K. Lewis resigns to accept an Institute fellowship for study in Germany. The new appointments are: Mr. John F. Norton, Assistant in Organic Chemistry; Mr. Charles Field, 3d, Instructor in Organic Chemistry; Messrs. F. H. Willcox and G. F. White, Assistants in Analytical Chemistry; Mr. Arthur Neale, Assistant in Technical Analysis; Champion H. Mathewson, Ph.D., Instructor in Analytical Chemistry.

An innovation of the coming year is the appointment of two Research Assistants in Technical Chemistry: Mr. Leavitt N. Bent and Miss Helen R. Hosmer. These assistants will work under the direction of Professor W. H. Walker, probably on general problems relating to the corrosion of metals, and it is hoped that this feature of the departmental work may be developed in the future. Mr. Colby Dill will also work, as a graduate student, under Dr. Walker's direction.

The following appointments of Fellows for advanced study and research have been made: D. F. Comstock, Savage Fellow, for work in Physics in Switzerland or England; H. T. Kalmus and R. S. Williams, Austin Fellows, for work in Physical Chemistry in Germany; R. C. Tolman, Dalton Fellow, and G. W. Eastman and E. W. Washburn, Austin Fellows, for work in Physical Chemistry at the Institute; W. E. MacDonald, Saltonstall Fellow, for work in Mathematics at Harvard University.

MATHEMATICS.

Mr. McDonald has been granted leave of absence for graduate study at Harvard University. Mr. Miller returns after two years of study in Göttingen and at Harvard. Mr. Roever has just taken his doctor's degree at the latter university.

Digitized by Google

GEOLOGY.

To see the great eruption of Vesuvius, Professor Jaggar sailed April 12, proceeded to Naples by way of Marseilles, Nice, Pisa, and Rome, arriving on April 23. The next day, in company with Dr. Tempest Anderson and two other members of the Alpine Club, he went to the volcano, and the party remained for several days on the high slopes of the mountain. They lodged at Cook's Hermitage Hotel adjoining the Royal Observatory, where Dr. Matteuci cordially greeted them.

On April 25 the party climbed to the edge of the crater, and had the good fortune to obtain photographs and a partial view of the interior of the new cauldron. On the 26th Professor Jaggar, in company with Mr. John Brigg, climbed Monte Somma, the outer ridge of Vesuvius. On the 27th collections were made of fallen lapilli and ash between the observatory and Naples. On the 29th the lava streams south of the cone were studied, and on the 30th an expedition was made to Pozzuoli and Baiæ.

Professor Jaggar has resigned his professorship at Harvard.

Professor D. W. Johnson is to lead an extended geological expedition into the Rocky Mountain region. Other members of the party will be Dr. H. W. Shimer, of the Institute, and C. H. Decker, M.E., of Poland, Ariz.

ENGLISH

A change has been made in the method of conducting the second-term work in Second Year English, and the results have been most satisfactory. The class has been divided into sections of not more than fifty each, and thus instruction may be made to take less the quality of a formal lecture, and be given something of the character of a discussion. In connection with this class-room work has been established a series of conferences, in which the reading assigned is personally discussed between the student and the instructor. The needs of individuals, their shortcomings and their merits, may thus be taken into account, and it is felt that the whole course is thus made more vital.

Digitized by Google

A student is likely to make progress in proportion to the opportunity he has for expressing his impressions in regard to literature. What he has talked over becomes real to him in a way not to be expected in the case of what he has heard merely lectured about. He learns by putting his own thought into word; and the present system of conferences is meant to be less a method of keeping track of the faithfulness with which the assigned reading is accomplished than as a method of encouraging students to state frankly their impressions, their likes and dislikes for what they read, their doubts, and, above all, their admirations if they have them. The improvement under the new system is indicated by the fact that it has been found possible to excuse about a fifth of the class from the final examination, so satisfactory was the record of their work during the term.

MODERN LANGUAGES

The work of the department has been somewhat diminished by the action of the Faculty in cutting out one year of modern languages from the courses in civil and sanitary engineering.

There will be the usual Summer School in Modern Languages this summer. A new departure is made by dividing the work in each of the language courses into two courses, one corresponding to the first term's work, and one to the second term's work at the Institute. The regular summer school course thus covers one term's work instead of a year's work, as heretofore. It is calculated, however, to fit the student to do a term's work by himself, so that he may accomplish a year's work during the summer.

In the Institute courses the nomenclature has been changed from French I., French II., and French III., French Sight Reading, to Elementary French, Intermediate French, Advanced French, and French Colloquium. The corresponding changes are made in the German and Spanish courses.

Foreign books have been introduced into the regular summer reading for Institute students: one French and one German book for the First Year students, and one French, one German, and one Spanish book for Second Year students. A number of foreign books are

Digitized by Google

also added to the Supplementary List of Books for summer reading. The reading in a foreign language will count, page for page, the same as reading in English. The working of this innovation will be watched with considerable interest by the department, and perhaps by the members of the Faculty.

Professor Vogel went to New York in June for his duties as a member of the College Entrance Examination Board, Mr. Hare accompanying Professor Vogel as a reader. Both were thinking of going to Europe upon the conclusion of their work on the Board.

Mr. Blachstein and Mr. Dike intend to go to Europe after the Summer School. The other instructors expect to remain in the United States.

Professor Bigelow will be more or less engaged in his duties with the Massachusetts Volunteer Militia. He hopes to go South to visit some of the battlefields of the Civil War in the preparation of a volume on one of its campaigns for the press.

Digitized by Google

THE UNDERGRADUATES

JUNIOR WEEK

The first event of Junior Week was the Glee Club concert and dance, held in the New Century Building, April 25. The matrons were Mrs. George F. Swain, Mrs. Francis W. Chandler, Mrs. Harrison W. Hayward, and Mrs. Frank H. Rand. At noon on the following day, the exercises of the Institute having been suspended for the rest of the week, the annual rush for the first copies of *Technique* took place at a temporary shed, located behind the Art Museum.

TECH SHOW

The first performance of the Tech Show was held at the Colonial Theatre on the same afternoon, other performances being given at the same place on the following afternoon, at Malden on Friday evening, and at Providence on Saturday evening. The libretto of "The Freshman" was written by G. H. Bryant, '07, the music being by E. H. Packard, '07, C. W. Coffin, '07, H. L. Moody, '07, C. L. Anson, '06, and H. S. Wonson, '07. The cast was as follows:—

Billy Benscoten, *The Freshman*	W. M. Schofield, '09
Ted Briscoe, *A Senior on the Team*	E. D. Boles, '07
Steven Urquhart, *Captain of the Team*	A. Ellis, '08
Pat Luscomb, *Manager of the Team*	W. B. Jenkins, '09
Karl Schlmihl, *A Student*	Kurt Vonnegut, '08
Alex Wilson, *A Grind*	R. H. Allen, '09
Alphonse Gaston, *A Restaurant Owner*	W. A. Adams, '08
John Royden, *Trainer of the Team*	G. M. Henderson, '06
Mignonne, *A Waitress*	C. W. Coffin, '07
Eurydice Benscoten, *Billy's Sister*	J. B. Sando, '08
Delia Foss, *An Athletic Girl*	Seaver, '06
Sally Van Etten, *Billy's Fiancée*	Bancroft, '07

Digitized by Google

Waiters: BROWN, '08; BULLARD, '08; FINNIE, '09; GARRATT, '07; HENDERSON, '06; JACCARD, '07; LORD, '09; SHAPLEIGH, '06.

Football Men: BOYNTON, '08; COFFIN, '08; CRITCHETT, '09; NICHOLS, '07; POPE, '09; REGNELL, '08; TAYLOR, '08; WALLIS, '09.

Chorus Girls: GILKISON, '08; HASTINGS, '07; HEARD, '09: HEROLD, '09; MARQUEZ, '09; STEPHENSON, '09; STIEBEL, '09; TRAUERMAN, '09.

College Girls: ARNOLD, '07; BELDEN, '09; EMERSON, '09; FOSS, '09; HAYNES, '09; KERR, '08; LOCKE, WHITMORE, '08.

College Men: BURLEIGH, '06; CALDWELL, '08; DOW, '09; DRAPER, '07; FREETHY, '08; HALL, '08; JOSLIN, '08; LAWRENCE, '09; MAYO, '08; NIX, '07; PARKER, '09; PENNY, '08.

The Show of this year departed a good deal from the usual vaudeville performance, partaking more of the character of a play with musical numbers. Most of the performers had appeared at previous Tech Shows, and, as a result, the acting and solo singing showed unusual proficiency and finish. The choruses were well sung, and in all respects the Show was entirely creditable to the young men who had worked so hard in preparing it. The management was as follows: R. W. Parlin, '07, general manager; J. D. Whittemore, '07, business manager; H. McCready, '08, assistant; J. B. Stewart, Jr., '08, assistant; Alexander Macomber, '07, stage manager; J. McGowan, Jr., '08, assistant; E. A. Hunt, '09, assistant; J. W. McMillin, '07, advance agent; W. F. Dolke, Jr., '08, press agent.

JUNIOR PROM

On Friday evening the Junior Prom took place in the ball-room of the Hotel Somerset, which was simply though beautifully decorated. The hall was crowded, and dancing continued until three o'clock. The Prom Committee consisted of John H. Leavell, Robert C. Albrog, Lawrence Allen, Emerson Packard, Donald G. Robbins, and William L. Woodward. The matrons were Mrs. Henry S. Pritchett, Mrs. Guy Lowell, Mrs. Eben S. Draper, and Mrs. William C. Endicott Jr. The patronesses were Mrs. Curtis Guild, Jr., Mrs. Roger Wolcott, Mrs. William C. Endicott, Jr., Mrs. James M. Crafts, Mrs. George F. Swain, Mrs. Francis

Digitized by Google

L. Higginson, Mrs. Henry S. Pritchett, Mrs. Guy Lowell, Mrs. William T. Sedgwick, Mrs. Eben S. Draper, Mrs. Desiré Despradelle, and Mrs. A. Lawrence Rotch.

SENIOR WEEK

The calendar of Senior Week was as follows: May 31, Senior Banquet at the American House, 6 P.M. Graduation reports distributed after the dinner. June 1, Alumni Reception at Engineering Building at 7.30 P.M. June 2, Musical Clubs' Concert at Huntington Hall, 8 P.M. June 3, Baccalaureate Sermon at Trinity Church, 4 P.M. June 4, Class Day Exercises at Huntington Hall, 2 P.M. Class Day Spread, on the lawn between Rogers and Walker, following exercises in the hall. Senior dance at Copley Hall, 8.30 P.M. June 5, Graduation Exercises at Huntington Hall, 2.30 P.M. Alumni Spreads in Engineering B, 4 to 6 P.M. Alumni Dinners at various clubs and hotels, 6 P.M. Tech Night at "The Pops," 8 P.M.

THE DINNER

The Seniors held their last undergraduate dinner Thursday evening, May 31, at the American House, with an enthusiastic attendance of over two hundred and fifty men. The guests were Dr. Pritchett, Mayor Fitzgerald, Messrs. Fred. P. Fish, George Wigglesworth, and Samuel Cabot, Professors Richards, Cross, Lanza, Swain, Chandler, Sedgwick, Dewey, Tyler, Porter, Talbot, Jaggar, Clifford, Merrill, and Bursar Rand. Andrew H. Keleher acted as toastmaster, being introduced by the chairman of the Dinner Committee, Louis Mesner. During the dinner R. C. Jackson, '06, R. R. Patch, '06, E. E. Orchard, '08, and W. B. Jenkins, '09, sang selections.

ALUMNI RECEPTION

To the martial music played by a band made up of all sorts of instruments the class of 1906 were welcomed into the great army of graduates by President Everett Morss, '85, of the Alumni Association.

Digitized by Google

President Pritchett, after welcoming the Seniors, spoke on the Relation of the Institute to the Commonwealth, saying that the Institute could well claim the increased support of the State.

Major Briggs, '81, spoke for the class graduated twenty-five years ago. Copeland, '76, representing his class, presented '06 with the "Ladder of Success," saying that there was plenty of room at the top.

'96 presented "The World to Conquer," a gold brick, a home, and an automobile. The stunt of the Seniors was a relay race, four men to a team, which was a combination of a pie-eating contest and a potato race.

BACCALAUREATE SERMON

The sermon was preached at Trinity, Sunday afternoon, by the rector, Rev. Dr. Alexander Mann. His text was, "When Jesus saw that he answered discreetly, he said unto him, Thou art not far from the kingdom of God" (St. Mark xii. 34).

CLASS DAY

The officers were: president, Maxwell Alanson Coe; first marshal, Herman Charles Henrici; second marshal, Charles Frederick W. Wetterer; third marshal, Herbert Lawrence Williams.

The exercises included: address by class president, M. A. Coe; address by first marshal, H. C. Henrici; statistics and history, C. F. W. Wetterer; prophecy, W. F. Englis; presentation oration, G. M. Henderson; oration, J. T. Lawton, Jr.; presentation of class gift, M. A. Coe.

In presenting the class gift, President Coe said: "Our class presents a hygienic marble fountain to replace that already in the main corridor of this building. This fountain was designed by an architect of our class, and has been purchased with money subscribed by members of the class. On a large tablet above the fountain is inscribed, 'Presented by the Class of 1906.'

"We give this fountain with a definite end in view; namely, to increase, if possible, the veneration and loyalty that the student

Digitized by Google

body holds for the Institute. We hope that the students of classes to come on drinking at this fountain will be inspired with some of that devotion to Technology which now thrills us."

GRADUATION DAY

At the Graduation Exercises abstracts of theses were read by ten men representing the different courses. Following these President Pritchett made a short address, and conferred degrees upon the following:—

MASTERS OF SCIENCE

James Lee Ackerson, George Herbert Barrows, Donald Raymond Battles, Sydney Atmore Caine, George Charles Funk, Richard Duncan Gatewood, Ida Annah Ryan, Gilbert Sanders Tower, William Henry Whitcomb.

BACHELORS OF SCIENCE

Civil Engineering.—Howard Parker Barnes, Charles Terrell Bartlett, Harold William Beers, Frank Arthur Benham, Laurence Gould Blodgett, Royall Douglas Bradbury, Ralph Henry Burke, George William Burpee, Clarence Elmore Carter, Arthur Mercer Chidhester, William Couper, Paul Nisbet Critchlow, John Charles Daly, Jr., George Lyman Davenport, Jr., Roland Parker Davis, William Frederic Farley, Carroll Andrew Farwell, Norman Paul Gerhard, Thornton Meriwether Gilmer, George Rockwell Guernsey, Wallace Ralph Hall, James Hayes, Jr., George Foster Hobson, Charles Albert Holmquist, Edward Ruddock Hyde, Ralph Dudley Kelley, Henry Kramer, Charles Tileston Leeds, William Hamilton Lincoln, Clifford Lynde, Elmer Dwight McCain, Joseph Newall McKernan, Louis Francisco Mesner, John Edward Lawrence Monaghan, Harvey Baxter Orcutt, Mark Hopkins Place, Edward Mason Read, Jr., Nestor Manuel Seiglie, Howard Payne Shaw, Arthur Louis Sherman, Guy Carleton Simpson, Percy Alexander Staples, Maurice Crawford Tompkins, Juan Francisco Urquidi, Franklin James Van Hook, Sylvester Cuthbert Wolfe, Herminio Yrizarry.

Digitized by Google

Mechanical Engineering.—Daniel Adams, John Wallace Anderson, Herbert James Ball, Fred Harold Bentley, Augustus Swaine Boynton, Harry Wheeler Brown, Charles Randall Burleigh, Charles Henry Chase, Arthur Morton Cheney, Walter Baker Clifford, Harold Vinton Otis Coes, Harry Hall Cook, Raymond Earl Cranston, Robert Ellis Cushman, Theodore Augustine Dissel, David Darby Eames, Frederic Edward Earle, Thomas William Faber, Robert Douglas Farrington, Edwin Frederick August Frank, Floid Merrill Fuller, Herman Trafton Gammons, William Waterman Gaylord, James Nickerson Gladding, Perley Kimball Griffin, William Abbott Hardy, Charles Whitney Hawkes, Herman Charles Henrici, Royal Robbins Heuter, Charles Alton Howard, Hans Otto Carl Isenberg, Joseph Warren Johnson, Karl Frank Juengling, Patrick James Kennedy, Jr., William Jared Knapp, Jorge Lage, Hunter Ulrich Light, William Isaac Lourie, Charles Allen Merriam, Charles William Mowry, Henry Hawkins Nelson, Jr., James Randall O'Hara, Jr., Henry Rathbone Patterson, Fred Sydney Phelps, Herbert Shaw Philbrick, Charles James Rich, Lewis Adams Riley, 2d, Paul Sylvester Schmidt, Robert Wyndham Seyms, Ernest Maxwell Smith, Philip Bartholomew Stanley, Donald Argyle Stewart, Allyn Chandler Taylor, DeWitt McClure Taylor, Wendell Phillips Terrell, Arthur Scott Thomas, Walter Hayward Trask, Jr., Louis Hillman Tripp, Arthur Townsend Trowbridge, Louis Tuckerman, William Camillo Turner, Clarke Edward Warren, Thomas Gray Webber, James Lippincott Wick, Jr., Sylvanus Wells Wilder, James Rice Williams, Edward Lowell Wilson, George Morris Winne, George Chester Young.

Mining Engineering and Metallurgy.—Raymond Jenness Barker, Earl Smith Bardwell, Walter Stanley Brown, James Marion Buchanan, Harry William Buker, Willis Amith Caypless, William Jefferson Deavitt, Walter George de Steiguer, Elmer Ellsworth Harrington, Ralph Hayden, Marden Warner Hayward, George Mitchell Henderson, Angelo Tilton Heywood, Leon Edwin Hirt, Harold Garfield Hixon, Thomas Barlow Holmes, Robert Hursh, Frank Richmond Ingalsbe, Fay Wilmott Libbey, Richard Vincent McKay, William Edward Hulbert Mathison, Henry Savier

Digitized by Google

Mears, John Edward Murphy, William Neilson, Harold Cleveland Plummer, James Higbie Polhemus, Russell Peter Raynolds, Attwood Eugene Rippey, John Allen Root, Guy Hall Ruggles, William Adams Sheldon, Albert Leslie Stephens, Jean Philip Varian, Arthur Percy Watt, Arthur Edward Wells, Herbert Lawrence Williams, Charles Francis Willis.

Architecture.—Albert Alden Blodgett, George Holbrook Buckingham, George Elberton Burnap, Edmund Schureman Campbell, John Joseph Donovan, Edward Burrowes Evans, Williams Charles Furer, Alfred William Hertz, Bruce Rutchie Honeyman, George Fessenden Hunt, Ralph Templeton Cushman Jackson, Frank Logan, Harold Lord, Charles Greely Loring, Fred Clemens Lutze, Eleanor Manning, Edward Leodore Mayberry, George Curtis Noble, Louie Adelbert Parker, Henry Bowers Thomson, Ernest Albert Walter, John Timothy Wrinkle.

Chemistry.—Simeon Carlyle Allen, Herbert Stevens Bailey, David Bloom, Anna Margaret Cederholm, Edward Center Groesbeck, Helen Ross Hosmer, Harry Caleb Merriam, Alden Merrill, Charles Burrows Morey, Arthur Neale, Sherley Purl Newton, John Foote Norton, James Booth Lockwood Orme, James Garfield Riley, Mary Julia Ruggles, Henry Erich Kaseman Ruppel, George Pinckney Shingler, Jr., Lambert Thorp, Clarence Edward Tucker, George Frederic White, Frederick Hartwell Willcox.

Electrical Engineering.—Edwin Ball Bartlett, Frederick Russell Batchelder, Otto Bernard Blackwell, William James Cady, Sidney Taylor Carr, Juan José Cartagena, Eugene Preston Chase, Ralph Scudder Clarke, Stewart Clark Coey, David Cady Davis, Herbert Welton Dean, Edward Munroe Eliot, William Green, Henry Abraham Ginsburg, Charles Eaton Hamilton, Charles LeBaron Kasson, Andrew Hamilton Keleher, Howard William Key, James William Kidder, Edward Scholfield Manson, Ashmore Breckenfeld Morse, Harold Morse, Harold Knapp Munroe, Walter Nathan Munroe, Galt Fayette Parsons, Burnell Poole, Clarence Brewster Powell, Charles Dana Richardson, Andrew Bartlett Sherman, Jr., Everett Chesebro Stanton, Edward Thomas Steel, Louis Arnett Thompson, Percy Ethan Tillson, Charles

Digitized by Google

Frederick William Wetterer, Herbert Stockwell Whiting, Leland Sargent Woodruff, Harold Eugene Young.

Biology.—Jane Boit Patten, Edgar Clifford Steinharter.

Physics.—James Ira Banash, George Choate Furness, Guy Hill, Herbert Percival Hollnagel, Burton Warren Kendall, Claude Stonecliffe McGinnis, Edward Bennett Rowe.

Chemical Engineering.—Leavitt Newell Bent, Colby Dill, Andrew Fisher, Jr., Harry Lewis Lewenberg, Harold Kay Merrow, Oscar Stoddard Pulman, Jr., Philip Bridges Sadtler, Ralph Nelson Sargent, LeRoy Holton Shipman, William James Walsh.

Sanitary Engineering.—Charles Frederick Breitzke, Samuel Arnold Greeley, Thomas Lesley Hinckley, James Robinson McClintock, Ralph Reginald Patch, Charles Saville, Charles Lyman Anson, Andrew Lane Bell, Howard Hayes Brown, Frank Atwood Browne, Walter Everett Chadbourne, Louis Robinson Chadwick, Edward Chandler, Robert Sidney Clark, Carl Francis Edwards, Robert Sherman Gardner, Charles McKay Huntington, Gilman Burt Joslin, Robert Joseph Lyons, Robert Ware Rose, Samuel Seaver, Everett Franklin Tomlinson, Samuel Langmaid Ware, Nathaniel Aldrich White, Nahum Clark Willey.

THE CLASSES

Junior Class.—On the evening of June 5 the annual Tech Night was held at the "Pops." About fifty members of the class were present, and all enjoyed themselves exceedingly. Members of the class also acted as ushers to escort the various classes into the hall.

Sophomore Class.—On April 7 the class held one of the most successful *Kommers* of the year. The committee in charge consisted of McGuigan, Vonnegut, Ellis, and Webb. Mr. Rand and Mr. Blachstein were the guests. There were about one hundred and fifty present, nearly all Sophomores. Mr. McGuigan was chairman for the evening; and those who took part in the entertainment were: Thomson, Williams, Rice, Vonnegut, McGuigan, Adams, Thöde, Barnes, and Gimson.

Digitized by Google

The first meeting of the *Technique* Electoral Committee was held on March 14. Between that date and April 9 there were twelve meetings, and the following men were elected to the board: as associate editors, G. S. Witmer, H. A. Rapelye, M. E. Allen, and B. L. Gimson; business managers, J. C. Brooks, H. R. Putnam, W. B. Given, and W. A. Adams; statisticians, W. R. Heilman and H. Webb; society editor, F. H. McGuigan; athletic editor, G. T. Glover; art editor, K. Vonnegut and E. I. Williams. The third member of the art staff will be chosen next fall by the board.

On May 7 the *Technique* Board held a meeting for the election of officers. H. A. Rapelye was elected editor-in-chief; W. B. Given, business manager; W. A. Adams, treasurer; and H. Webb, secretary.

CONVOCATION

President Faunce, of Brown University, was the speaker at the general convocation held in Huntington Hall, April 23.

PROFESSIONAL SOCIETIES

Architectural Society.—The society held its annual election of officers April 13, with the following result: president, F. A. Naramore, '07; vice-president, S. A. Marx, '07; secretary, S. R. T. Very, '07; treasurer, K. Vonnegut, '08; Executive Committee, C. F. Baker, '06, F. H. Kales, '06, and E. F. Lewis, '07.

The society has laid aside $200 as the basis of a scholarship fund, which is intended to give aid to needy and worthy students of the Department of Architecture. The fund is placed in the hands of three trustees,—Professor F. W. Chandler, Professor W. H. Lawrence, and Bursar F. H. Rand,—appointed by President Naramore, '07. The net proceeds of the *Architectural Annual*, and of any other publication of the society, are to be added annually to the fund until it reaches $1,000, when it will be handed to the Treasurer of the Institute in trust. The income is to be given to such needy students as the trustees believe worthy of

Digitized by Google

receiving aid. Circulars, setting forth the founding of the fund and its object, are to be sent to all the alumni of the department and to the resident architects of Boston, requesting their aid in building it up.

The society is contemplating changing its *Annual* to a magazine, to be published every two months, containing cuts of the current work of the department, together with criticisms of the work, articles by the professors and alumni, and a department for the alumni, with cuts of work being done by them.

The Pen and Brush Club of Harvard entertained the society at a smoker, May 8, in the assembly-room of the Harvard Union. Mr. Joseph Lindon Smith delivered a lecture on "Japan."

Mining Engineering Society.—The society held a meeting, May 8. Mr. A. W. Tucker, '98, now an assistant in the Mining Engineering Department, addressed the meeting on "The Virgilina Copper District of Virginia."

The society has elected officers, as follows: president, J. S. Coupal, '07; vice-president and treasurer, F. C. Jaccard, '07; secretary, J. N. Maxwell, '08. The Executive Committee will consist of the president, vice-president, and secretary, J. P. Chadwick, '07, and G. T. Bridgman, '08.

Mechanical Engineering Society.—The annual business meeting of the society was held May 1 at the Union. The following officers were elected for the ensuing year: A. G. Labbe, president; W. G. Hanford, vice-president; W. W. Bigelow, secretary; and A. B. Arnold, treasurer. E. D. Boles, C. Brewster, and Allen Pope were elected to the Executive Committee. Professors Lanza and Miller spoke.

Electrical Engineering Society.—The society enjoyed a pleasant and instructive trip, April 17, to the works of the General Electric Company at Lynn.

Twenty-five members of the society visited the L Street plant of the Boston Edison Company, May 3.

Civil Engineering Society.—The society held a meeting April 30 to elect officers for the ensuing year. The results were as follows: president, H. B. Hastings, '07; vice-president, R. C. Albro, '07; sec-

Digitized by Google

retary, M. E. Allen, '08; treasurer, T. W. Orr, '08; Executive Committee, J. M. Barker, '07, chairman, H. P. Farrington, '07, S. Allen, '07, H. J. Ruggles, '08; Programme Committee, E. W. James, '07, chairman, R. C. Albro, '07, H. B. Alvord, '07, and C. H. Boylston, '08.

Mr. Frank W. Hodgdon, '76, chief of the Massachusetts Land and Harbor Commission, gave a very interesting talk at the society's smoker, May 11, at the Union. He told of the Commission's work on the harbors and channels along the Massachusetts coast, and gave a number of stereopticon views on the subject. He also spoke of the reclamation of land in and about Boston, and told how the Back Bay District was built up.

CLUBS

Co-operative Society.—The annual meeting of the board of directors of the society was held May 15 in the Trophy Room. The officers for the ensuing year were elected as follows: president, Alexander Macomber, '07; vice-president, H. B. Hastings, '07; treasurer, A. D. MacLachlan, '96; secretary, Bryant Nichols, '07; directors, C. H. Boylston, '08; V. C. Grubnau, '08.

During the year the directors have set aside $950 for scholarships.

Civic Club.—The club held a dinner May 8 at the Tech Union. Mr. Homer Albers and Professor Dewey were the guests of the evening. Mr. Albers spoke on "The Progressive Inheritance Tax." Professor Dewey spoke on "Present Day Conditions." The election of officers for next year resulted as follows: president, Bachman; vice-president, Dyer; secretary, Pastoriza; treasurer, Udale.

Walker Club.—The club held a dinner on May 10 at the Technology Club. After the dinner a business meeting was held, and the following men were elected officers for the ensuing year: president, D. G. Robbins, '07; secretary-treasurer, B. L. Gimson, '08. Messrs. F. H. Rand and I. W. Litchfield were elected honorary members.

Digitized by Google

Professor Bates addressed the club, taking as his subject "An Avocation."

British Empire Association.—At a meeting of the association held May 11 the following men were elected officers for next year: chairman, M. E. Denny, '08; vice-chairman, B. L. Gimson, '08; Executive Committee, E. E. Wells, S. M. Udale, '06, and E. M. Bettington.

Mechanic Arts H. S. Club.—The club held a dinner at the Union April 20. President E. O. Hiller presided. The election of officers was announced as follows: E. O. Hiller, president; O. G. Fales, vice-president; R. B. Weiler, secretary. The guests were Dr. Parmenter, head-master of the M. A. H. S., and Messrs. Parish and Reed, instructors.

Newton H. S. Club.—The club held its second annual dinner at the Union April 20. The toastmaster was President G. M. Henderson, '06. The speakers were Head-master Adams and Masters Meserve, George, and Palmer, of the Newton High School, ex-President R. H. W. Lord, '05, and W. K. Lewis, '05. A dozen members of the senior class at high school, who intend to come to Tech next year, were the guests of the club.

Musical Clubs.—The clubs held their annual dinner at the Copley Square Hotel. Officers for the coming year were elected as follows: president, Swett, '06; vice-president, Keyes, '07; secretary, Fales, '07; general manager, Gardner, '08; Glee Club, Keyes, '07, leader, Jenkins, '09, manager; Banjo Club, Fales, '07, leader, Gerrish, '08, manager; Mandolin Club, Thompson, '08, leader, Scharff, '09, manager.

TECH SHOW

At the Tech Show dinner, May 4, Alexander Macomber, '07, presented Mr. James Francis with a handsome set of cut-glass decanters and glasses, with a tray to match, as a testimonial to him of the regard in which the cast and management of the Show hold him.

The guests were James Francis, George Wigglesworth, Treas-

Digitized by Google

urer of the Corporation, Professors Clifford and Wendell, Mr. Rand, Mr. Stinus, Brown, '01, who did three-quarters of the work of the Show at Providence, and Major Briggs. George Bryant, '07, also spoke on "What I did Friday Afternoon." R. W. Parlin, '07, presided.

The following men have been officially appointed to the managing staff of the Tech Show for next year: general manager, A. Macomber, '07; business manager, H. McCready, '08; stage manager, T. McGowan, Jr., '08.

KOMMERS

At Senior Night at the *Kommers* President Pritchett gave a talk on the Cabot Medals. He was forced to depart early, so Dean Merrill took his place in presenting the medals to the men who have already won them. The other speakers were Major Briggs, John Mahan, and W. C. Towne. M. A. Coe, '06, was toastmaster.

A big marble clock, presented by the class of 1906 to the Union, has been hung in a conspicuous place, and adds greatly to the appearance of the room.

The men given Cabot medals are as follows: 1901, W. A. Kemper, H. B. Pulsifer, B. D. Solomon, G. D. Wilson; 1902, W. L. Adams, J. F. Ancona, G. H. Clapp, W. C. Phalin, J. B. Whitmore; 1903, L. T. Buell, G. R. Kaiser, R. G. Kennedy, W. N. Munroe, E. F. Parker, Jr.; 1904, J. C. Damon, F. P. Poole, J. P. Stow, Jr.; 1905, A. E. Hartwell, A. T. Heywood, A. H. Keleher, C. B. Mayer, and H. G. Pastoriza.

General William A. Bancroft, president of the Boston Elevated Company, delivered a lecture, illustrated by lantern slides at the *Kommers*, April 21, before an audience of over one hundred and fifty men.

The last *Kommers* of the year, May 12, was addressed by Mr. John Z. White, of Chicago, on the subject of "The Single Tax."

Digitized by Google

ATHLETICS

The Annual Interscholastic Competitive Drill was held in South Armory May 2. Ten high schools entered teams of three men each. The exercises commenced with a company drill by the M. I. T. C. C., Captains Dolke, Heath, Lufkin, and Perry commanding. The battalion was then drawn up in battalion formation by Adjutant Hodsdon, and Company D acted as escort to the colors. Battalion drill, under command of Major Carter, followed.

The Competitive Drill was followed by Dress Parade by the Freshman Battalion. The cup for the greatest number of points was awarded to Stoneham High School. All three members of the Stoneham Team were among the eight point winners, giving a total of twelve points. M. Pratt, of Lowell High School, won the individual gold medal for first place, and the silver medal for second place was awarded to W. R. Sleeper, of Stoneham High School.

ANNUAL SPRING CLASS MEET

The annual spring class meet at Tech Field, April 21, was won by 1906 with a total of 67 points, 1908, with 57½ points, being a close second. This result, together with the results of the indoor meet in the winter, in which 1906 won with a total of 35 points, gives the Senior Class the championship in track athletics for this year.

The consolation meet of the Athletic Association, open to all men who did not win points in the spring meet, was held May 14 at the Field.

DUAL MEET WITH WILLIAMS

By taking all three places in the last event of the meet, Williams won the first dual meet it has had with Technology, May 12, 66⅔ points to 59⅓.

Digitized by Google

INTERCOLLEGIATE MEET

In the intercollegiate meet, held at Tech Field on May 19, Dartmouth was an easy winner. Brown was second, with Tech a very close third. The final scores were:—

	Points.		*Points.*
Dartmouth	36	Amherst	11⅓
Brown	23	Tufts	8
Tech	21⅝	Bowdoin	5
Williams	19⅝	Trinity	2
Maine	14½	Vermont	0
Wesleyan	12½		

TENNIS

Technology's two representatives in the annual tournament of the New England Intercollegiate Tennis Association won the New England intercollegiate lawn tennis championship, May 31, by defeating Smith and Westcott, of Williams, 3–6, 6–4, 6–4, 6–8, 7–5. Fanning also secured second place in the singles, being beaten, after a hard-fought match, by F. R. Smith, Williams.

THE GYMNASTIC TEAM

The second annual exhibition of the Technology Gymnastic Team was held April 13 in the Gymnasium, under the direction of Mr. W. C. Towne. There were two teams, which took turns in competing in the twelve events. The best all-round work was done by Captain Griffin, '06, Lourie, '06, and Smith, '06, all of whom excelled in their work on the flying rings, horizontal bar, and parallel bars.

TECH FIELD

Important improvements at Tech Field will be made during the summer.

One of the most important changes will be the moving of the

Digitized by Google

bleachers to the other side of the field from that which they now occupy.

A 220-yard straight-a-way will be built over the ground where the grand stand now is. The whole grounds are also to be levelled up and put into better shape.

CROSS COUNTRY ASSOCIATION

The Cross Country Association held a meeting April 6, and chose officers for the ensuing year as follows: L. Allen, '07, president; C. S. Clapp, '08, secretary; H. R. Callaway, '08, captain; O. H. Starkweather, '07, manager; B. R. Hunter, '09, chase captain.

CABOT MEDALS

Cabot medals for the most marked improvement in physical training during the year have been awarded to Tuckerman, '06, Greenwood, '07, Tresnon, '07, Tobin, '08, and Saeger, '09.

Digitized by Google

THE GRADUATES

THE NORTH-WESTERN ASSOCIATION

The most important item of interest that has come before the Association is the active work in behalf of the "Alumni Fund." We have been greatly handicapped in connection with this work through the lack of information as to the policy pursued by the Institute, now that the merger question has been settled. Our Local Fund Committee was appointed, consisting of the following: E. H. Huxley, '95, chairman; J. T. Cheney, '03, secretary; S. M. Felton, '73; F. K. Copeland, '76; T. W. Robinson, '84; S. Sturges, '87; J. L. Shortall, '87; L. A. Ferguson, '88; E. M. Hagar, '93; H. P. Beers, '97; and a very active campaign entered upon. An appeal and subscription cards were sent to 250 members in and around Chicago, under the date of June 4, and it gives me great pleasure to report that the results are very gratifying, considering the short time since the question was put before them. Our aim is to place Chicago second on the list, which is the position she should hold in the total amount of subscriptions.

On May 7 the committee entertained Mr. Frederick P. Fish, a member of the Corporation, at the Chicago Club, and we passed a very pleasant evening. The talk was informal, and the clear expression of the present and future plans of the Institute by Mr. Fish has done more to revive the seemingly dormant spirit of our members than any one thing.

Our Association has always included all Institute men west of Pittsburgh and Buffalo, but, in view of the fact that Cincinnati, Denver, and some other Western cities now possess thriving Tech clubs, we thought best to modify our policy somewhat, so as to include only the North-west Territory, as the name implies. This does not appreciably reduce our active membership, those paying dues, but gives us a body upon whom we can rely. A hearty invitation to all our meetings and dinners is extended, as heretofore,

Digitized by Google

to Institute men, and it is our aim to keep the whole Alumni Association informed of such gatherings. Do not fail to join us, if possible.

A directory of members of the North-western Association will soon be published, which will contain addresses and telephone numbers; and we feel this will tend to keep the members in closer touch, and promote good fellowship.

JOHN T. CHENEY, *Secretary*,
878 South Halsted Street, Chicago.

WASHINGTON SOCIETY OF THE M. I. T.

The regular semi-monthly meetings of the society have been continued during the past three months.

On March 26, Myron L. Fuller, '96, of the Division of Hydrology, United States Geological Survey, and his associate, F. G. Clapp, '01, gave an interesting talk on a trip to Newfoundland and the coast of Labrador which was taken by them last summer, Mr. Clapp's talk covering the first part of the trip to and through Newfoundland, and Mr. Fuller continuing with the part beyond, up to the point where the arctic ice-fields prevented further progress of their steamer along the steep, rocky shores of Labrador, and compelled their return. Starting about July 8 from Boston, the round trip was made in a little less than a month. Maps and a full collection of photographs added to the appreciation with which the talk was received.

A special meeting of the society was held on April 19 on the occasion of the presence in Washington of Professor A. A. Noyes, chairman of the Faculty, and Professor Noyes gave a somewhat extended address on the present condition of the Institute and its needs and plans for the future, which was of special interest to the Washington alumni at this time. The address dealt with a situation of affairs from which several of the recent uncertainties have been removed, but which presents new problems which the alumni must have an important part in solving. It is safe to say that all those present at this meeting came into a much clearer understanding of several of these problems. Professor Noyes's talk was, on the whole, distinctly encouraging for the future.

Digitized by Google

An important contribution to the discussion which followed was an address by Mr. F. H. Newell, '85, Washington's newly elected member of the Corporation, on the actual practical value of the Technology training, with particular reference to the Government Reclamation Service. Some of the more important points developed in the addresses and discussion were the desirability of maintaining a high standard of work at the Institute, of developing the department of graduate work as much as possible, and of providing for the regular carrying on of research work by instructors, and the necessity of regular courses of work in summer schools by the undergraduates for practical training, and of compulsory physical training during the school year.

At its meeting of May 14 the society listened to an informal talk by Lieutenant Colonel Andrew H. Russell, '68, an army expert on ordnance and small arms, on "The Development of the Modern Magazine Gun for Military Purposes," illustrated by an exhibit of a large number of samples and models. Colonel Russell has been for a number of years an inventor in the line of magazine devices for small arms, and some of the important features of army rifles, of types now known under other names, originated with him. His talk covered in brief the entire history of the development of such guns.

The following new names have recently been added to the secretary's list of Tech men in Washington: George H. Bliss, '96; Arthur C. Willard, '04; Arthur Winslow, '06; P. A. Blair, E. L. Wilson, Frank Toohey, '01; Fred W. Guibord, '05; Gorham Crosby, '05; and Herbert W. Kenway, '06,—the last four being examiners in the Patent Office.

Albert S. Merrill, '00, who for some years has been an active worker in this society, having served at different times as its treasurer, secretary, and member of Executive Committee, has left his position at the National Bureau of Standards, to take a new one with the Sullivan Machinery Company of Chicago. His associates here all deeply regret his going.

F. W. Swanton, '90, *Secretary*,
1641 13th Street, N.W., Washington, D.C.

Digitized by Google

THE M. I. T. CLUB OF CINCINNATI

The Cincinnati M. I. T. Club at its last meeting reluctantly accepted the resignation of its president, Mr. George W. Kittredge, class of '77. Mr. Kittredge left Cincinnati in April to assume the position of chief engineer of the New York Central & Hudson River Railroad, which we look upon as one of the highest positions in railroad engineering that this country can offer. After leaving the Institute, he worked for a short time on the development of the South Boston Flats, where the New York, New Haven & Hartford Railroad is now located, and in 1880 went to the Pittsburg, Cincinnati & St. Louis Railway Company, one of the Pennsylvania lines, being employed in the maintenance of way department for ten years. In 1890 he went to the Cleveland, Cincinnati, Chicago & St. Louis Railway Company, and in '91 was made chief engineer of that company, holding the position until his well-merited promotion. Mr. Kittredge will make his headquarters in New York.

R. W. Proctor, '94, *Secretary*,
5th and Pike Streets, Cincinnati, Ohio.

TECHNOLOGY CLUB OF NEW BEDFORD

The final meeting of the season of 1906 of the Technology Club of New Bedford was held at the home of Mr. Edgar R. Hammond on May 24, when fourteen members were present.

The question as to whether the club would subscribe to the Technology Fund as a club or individually was thoroughly discussed, and it was decided to do nothing as an organization, but leave it to the different members to make their subscriptions as they saw fit. The meeting adjourned to meet again in the fall.

A poll of the members shows that but seven have followed out the business indicated by the course they took at the Institute. Two of these are teachers. Of the others, six are in private business, three are at the head or in the service of corporations, one is in newspaper work, and one retired.

Charles F. Wing, Jr., *Secretary*,
34 Purchase Street, New Bedford, Mass.

Digitized by Google

THE TECHNOLOGY CLUB OF HARTFORD

Replying to your favor of the 26th ultimo, asking for news of our Association, would say that, as we have discontinued our meetings until fall, we have not very much of importance to report.

On the 5th of May a meeting and banquet was held at Hartford under the auspices of the Hartford Technology Club. A committee was appointed to make arrangements for the next meeting of the Association: Edmund P. Marsh, chairman, Box No. 791, Springfield, Mass.; E. Ellsworth Horton, Windsor Locks; C. E. Whitney, Hartford, Conn.

After the meeting a dinner was served and remarks made by Everett Morss, President of the Alumni Association, and Professor Porter, who represented the Faculty.

GEORGE W. BAKER, '92, *Secretary*,
Box 983, Hartford, Conn.

THE VERMONT TECHNOLOGY ASSOCIATION

The annual meeting of the Vermont Technology Club was held in Burlington at the Van Ness House on Friday evening, April 27. There was a regrettably small attendance, partly owing to the short notice given to the members, as the arrangements were not completed for the dinner until a few days before. Mr. C. P. Moat, '96, was elected president; Professor Ernest C. Bryant, '93, of Middlebury College, vice-president; and Professor E. C. Jacobs, '97, of University of Vermont, was elected to the Executive Committee for two years, the other member of the Executive Committee being H. W. Clement, of Rutland, who was elected last year for a two years' term.

Our membership this year has been somewhat decreased by the removal from the State of several of our last year's members, among them L. F. Miller, '01, who moved with his wife to San Francisco, arriving there just in time for the earthquake. Miller wrote a very funny letter to the secretary, giving a most graphic account of

Digitized by Google

his experiences, including "cooking in the street." Fortunately, Mr. Miller and his wife escaped injuries and property loss, as their household effects, which they were shipping from the East, had not reached them.

Since the meeting our president has taken unto himself a wife. We sincerely hope that he will not furnish us the Biblical excuse at our next meeting in September or October.

R. Proctor, Jr., '02, *Secretary & Treasurer*,
Proctor, Vt.

TECHNOLOGY CLUB OF NORTHERN OHIO

When Professor Allen went West in March to attend the American Railroad Engineering and Maintenance of Way Convention, he stopped off for a day in Cleveland, and assisted in forming an active alumni association among the old Tech men in Cleveland and vicinity.

Twenty-two members gathered at the University Club on the evening of March 23, and listened to very interesting remarks from Professor Allen relative to present conditions and future prospects at the Institute. A temporary organization was effected, and committees appointed to establish it on a permanent basis. The fellows gathered informally about a huge grate fire in the lounging-room of the club, and the time was pleasantly spent.

Subsequently several committee meetings were held, and on April 9 the second gathering assembled at the University Club. Thirty-two members were on hand to launch the "Technology Club of Northern Ohio," with the following officers in command: president, Franklin B. Richards, '84; vice-president, Robert B. Wallace, '99; secretary-treasurer, Sidney Y. Ball, '03; Executive Committee, Azel Ames, Jr., '95, Frederick Metcalf, '90, Edward R. Motch, '97, G. E. Merryweather, '96, James Ritchie, '78.

Plans were discussed to determine the nature of future meetings, a constitution and by-laws adopted, and the organization established on a permanent basis. The meeting was on the "Dutch lunch"

Digitized by Google

order, and reminded some of the younger members pleasantly of the *Kommers* at the Tech Union.

Cleveland is a wonderfully busy manufacturing city, and our great industrial enterprises are attracting more Tech men every year, so that the Northern Ohio Club will be large, active, and very much alive to the interests of Alma Mater.

SIDNEY Y. BALL, '03, *Secretary*,
Ball Building, Cleveland, Ohio.

THOMAS A. EDISON ON THE M. I. T.

From *Pearson's Magazine*, August, 1906, p. 124.

"One of the most significant evidences of the tendencies of the age is the fact that, while the hours of muscular work are becoming shorter, the hours of brain work are growing longer. Science is making the executive problems of production more involved, and at the same time it is simplifying and lightening the burdens of mere animal effort.

"Go to the Bethlehem Steel Works, and see young men of twenty-five and thirty years in charge of the big hammers and machines. Why? Because they are graduates of the Massachusetts Institute of Technology. If there were ten such schools in Boston, their graduates would be gobbled up as fast as they came out."

Digitized by Google

NEWS FROM THE CLASSES

1868.

PROF. R. H. RICHARDS, *Sec.*, Mass. Inst. of Technology, Boston.

At the dinner and Pops the class of '68 had quite a full representation. Eben S. Stevens, S. S. Whitney, W. S. Jackson, A. F. Hall, and R. H. Richards were there. Hall, however, did not go to the Pops.—J. Rayner Edmands of '69 joined '68 at the Pops, and swapped stories with them.

1875.

E. A. W. HAMMATT, *Sec.*, 10 Neponset Block, Hyde Park, Mass.

The class had two representatives at the dinner held by the classes of '68–'77 at the Tech Club on the 5th inst., and the same at the Pop Concert. This is not very encouraging to the secretary, who sent out about 25 to 30 special notices to men within easy reach of Boston, and received but 3 replies.—Edes has written a very interesting letter regarding the earthquake and fire in San Francisco. He says regarding the sensations experienced during the shock that the best comparison he can give is that of trying to walk through a rapidly moving train while going around a curve; also that the principal damage by the "quake" was to chimneys, poorly constructed frame buildings, some brick buildings, and, of course, plastering, etc. The chief damage was by fire, which, he says, was four or five times the size of the Boston fire. . . . . While many people lost practically all they had, the most doleful ones are those who were worth several millions and lost half a million or so.

Digitized by Google

1877.

RICHARD A. HALE, *Sec.*, Lawrence, Mass.

The notice of G. W. Kittredge's change to chief engineer of the New York Central Railroad was under the head of class '78 news in the TECH REVIEW. He was a '77 man, and had always been connected with the class.—The class of '77 joined in the spread given by the classes 1869 to 1884 at the Engineering Building B. There were but few '77 men present. At the class dinner at which classes 1869 to 1878 dined together at the Technology Club there were nine members of '77 present, mostly those living about Boston. Eight members attended the Pop Concert in the evening.—R. A. Hale has been retired from the Lawrence Park Commission after continuous service of twelve years. The last six years he has served as chairman of the board.—Fred W. Wood, one of the newly elected members of the Corporation from the alumni, came from Sparrow's Point to attend the regular corporation meeting and the reception given by Dr. Pritchett and Mr. Stone to the new members.—Joseph P. Gray, another newly elected member, was also present at both meeting and reception.—F. I. Sherman has a son who was graduated the present year in Course I.

1882.

WALTER B. SNOW, *Sec.*, 29 Russell Avenue, Watertown, Mass.

The class was represented at the Commencement dinner and the Pops by Gooding, Herrick, Munroe, W. B. Snow, and A. W. Walker.—The present address of H. H. Duker is 2229 St. Paul Street, Baltimore, Md.—Information has been received of the death of Clarence C. Lynch and Thomas H. Howard, both of whom were associated with the class for a short time.—Frank B. Cochran writes from Geneva under date of June 8: "I shall be abroad for at least another year. At present am touring Europe with a 35 H. P. 'Mercedes,'—an enjoyable pastime and rest from business."—Munroe

Digitized by Google

is chairman of a Social Education Congress to be held at Tremont Temple, Boston, on November 30, December 1 and 2. The object of the Congress is to present to the whole community the need of increased efficiency in social and industrial training, and it will be addressed by many distinguished men and women. In May he spent a week at the University of Illinois, giving a course of lectures on the History of Education.

1883.

HARVEY S. CHASE, *Sec.*, 27 State Street, Boston.

The class of '83 dined with '82 and '84 at the Technology Club, and from there went to the Pop Concert together. There were but three members present; namely, Smith, Capen, and Underwood.

1884.

PROF. WILLIAM L. PUFFER, *Sec.*, Mass. Inst. of Technology, Boston.

The class of '84 was very well represented at the dinner and "Pops," there being ten men present at the joint dinner of '82, '83, and '84 at the Technology Club, where a very enjoyable and cosey time was had in discussing the old days and the changes which have taken place among us since then. At the "Pops" there were ten of us, and we feel that the class of '84 was remarkably successful in getting together a larger number of men than any of the older classes.—'84 should feel especially proud, inasmuch as we have three members on the Corporation; namely, Rotch, du Pont, and Newell. du Pont and Newell both were able to be present at part of the festivities, and seemed much the same as they did in the old days, although there was considerable mutual joking concerning the thinness of hair in certain places, and other changes, which after all did not seem of consequence enough to account for the number of years that had passed since our own graduation day. We were also pleased to have with us one of our classmates, Pratt, who has gen-

Digitized by Google

erally been unable on account of business to join in our various class meetings. At the dinner there were present: Appleton, Bardwell, Gill, Mellen, Pratt, Puffer, Rotch, Ryder, Tyler, and Whitney. Appleton was not able to be present at the concert, and Bennett took his place, keeping up our numbers.

1885.

I. W. LITCHFIELD, *Sec.*, 161 Devonshire Street, Boston.

Mr. F. H. Newell, chief engineer of the United States Reclamation Service, has recently returned from an inspection of the works under construction in the Territories of Oklahoma, New Mexico, and Arizona, and in the States of California, Nevada, Utah, Colorado, and Kansas. Rapid progress is being made on construction. The work in its general magnitude now stands well toward the front of public undertakings. The expenditures on water storage and distribution systems aggregate about $1,000,000 a month. Most of the large engineering problems have been worked out. The present rate of construction and expenditure is probably at the maximum, and will decrease gradually, many of the most expensive structures being now at the period of greatest activity. During his absence in the West Mr. Newell has been elected a member of the Corporation of the Massachusetts Institute of Technology, of which he is a graduate; also a member of the board of trustees of the Washington (D.C.) College of Engineering of the George Washington University. He has also been elected as one of the board of directors of the Washington Society of Engineers and chairman of the Committee on Meetings.—*Science*, May 8.

—Little has increased his laboratory force until he now has twelve assistants, eight of whom are Tech men. Under an appointment in the United States Forest Service he is supervising a long series of experiments to determine the paper-making quality of the pulp from a large number of American woods. Under his direction the government has equipped for this work a model sulphite mill, which is located in one of the buildings adjoining Lawley's plant at South Boston. He is also working in co-operation with the Bureau of Standards at Washington in the preparation of specifications cov-

Digitized by Google

ering the government's purchases of paper, and has recently been appointed official chemist to the American Paper and Pulp Association. On May 15 he presided at a very enjoyable dinner given at the Exchange Club by the honorary members of the K_2S, the undergraduate chemical society, to the active and associate members.

1886.

PROF. A. G. ROBBINS, *Sec.*, Mass. Inst. of Technology, Boston.

Between forty and fifty members of the classes '85, '86, and '87, dined together at the Trade Club Tuesday evening, June 5. Several who were present for the first time since their student days entertained those present with stories and reminiscences of student and professional life. Soon after 8 P.M. the meeting was adjourned in order to attend "Tech night" at the Pops, Symphony Hall. The '86 men present were Aborn, Anthony, Chase, Cobb, Leach, Noyes, Peirce, Ricker, Robbins, J. M. Smith.—Pope was married on April 28, in Cambridge, to Miss Henrietta Warner Weisman. Mr. and Mrs. Pope reside at 10 Foster Street, Brookline.

1887.

EDWARD G. THOMAS, *Sec.*, 161 Devonshire Street, Boston.

Cobb has been appointed lieutenant colonel and assistant adjutant-general of the Second Brigade, M.V.M. He recently visited Costa Rica on an examination of mining properties in which he is interested. —Taintor has moved his law offices to Rooms 946 and 947, Exchange Building, Boston.—Sprague made a six weeks' trip to Nicaragua in April and May, to examine and report on a mining property. The country seems to have impressed him mainly as illustrating the advantages of Boston as a place to dwell.—Spaulding has moved the New York office of the Triumph Electric Company to 1123 Broadway.—Farwell is secretary of the Pleasant Canyon Mining Company, and expects shortly to rival any of the mining kings. It is.

Digitized by Google

a gold property in Inyo County, California, well developed and equipped. He is still very busy with his architectural work.—The joint dinner of '85, '86, and '87 at Commencement time was well attended, and '87 was represented by Carpenter, Cameron, Draper, Sears, Fred Thompson, Very, Hildreth, F. A. Emery, E. G. Thomas, Tripp, Taintor, and Curtis. Later at the Pop Concert Lane, Proctor, and Coburn were added to our numbers. Emery was with us for the first time in eighteen years.—Henry M. Steele has accepted the position of head of the civil engineering department of J. G. White & Co., and will shortly move from Atlanta to New York City. His address will be 43 Exchange Place.—Todd will devote a large part of his time to the development of the New York Electric Music Company. The first floor and basement of the building on the north-east corner of Broadway and 39th Street has been rented for the first central station, and the upper room will be fitted up as an auditorium where the music may be heard and the machinery inspected. From this station music will be supplied by telephone up to the capacity of the station, 200,000 subscribers. It is expected that the station will be in operation November 1. The machinery will require 200 kilowatts for its operation.—Nickels is now in charge of the smelter of the Utah and Eastern Copper Company at Shem, Utah, "twelve miles up the river from St. George, which is sixty-five miles from anywhere." He writes:—

. . . Your letter of May 7 found here on my return from a two weeks' outing at our road-building camp on road to Acoma, Nev., a station on the Salt Lake and Los Angeles Railroad, forty-five miles away.

My outing consisted of wrestling a transit on steep side hills and through scrub oak.

I have been here since January 12, and have only been able to run furnace four days. I got nicely started, when the highest waters in the history of the country washed out our dam, as well as wagon road to railroad. This I replaced with a brush dam such as the Mormons use at the head of their irrigating ditches. This was taken out by the second and higher flood, and the channel changed, moving away from ditch head-gate, obliging us to go farther up stream and put in a wing dam besides a new brush dam at head-gate. Brush dams are not very scientific, but the interest on the cost

Digitized by Google

of a stone or timber dam will build one, and it is probable the former will last five or six years." . . .

1888.

WILLIAM G. SNOW, *Sec.*, 1108 Penn Mutual Building, Boston.

The annual dinner took place on June 5 at the Westminster. The following men attended: Sawyer, Eastman, E. W. Heath, Gage, Wood, Blanchard, Runkle, Bridges, and Snow. After the reading and acceptance of the secretary's report, A. H. Sawyer was re-elected president. After the dinner the class attended the Pop Concert, where Mead added one to the number.—The annual meeting of the National Electric Light Association was held in Atlantic City during the first week in June, under direction of President William H. Blood, Jr. The registration at this meeting was the largest of any held by this organization and the occasion was a great success in every way.—Edwin O. Jordan and Allen Hazen were present and spoke at the complimentary dinner recently given to Professor Sedgwick.—William H. Blood, Jr., has been elected a member of the Executive Committee of the New England Railway Club.—The Boston *News Bureau* of June 16 states:—

An engineering and construction company, with a fully paid in capital of $250,000, has been organized by Stone & Webster, under the laws of Massachusetts, to engage in a general engineering and construction business in connection with large undertakings. The Engineering Corporation will take over the engineering part of the business of Stone & Webster, which was originally the important part of their general business.

Stone & Webster, some sixteen years ago, were among the first to enter the field of electrical development as electrical engineers and experts, the business soon reaching large proportions. During the last few years, however, on account of other important interests of the firm their efforts along these lines have been almost exclusively devoted to the requirements of the various companies under their management. As the firm desires to devote its time and energies to financial affairs and the management and development of the numerous properties which it operates, it has formed the Stone & Webster Engineering Corporation, the *personnel* of which will largely con-

Digitized by Google

sist of men who have been associated with the firm for years in connection with the engineering and construction side of their business. In addition, arrangements have been made to associate with the new company engineers of prominence in their various lines with the idea of placing it in a position to undertake engineering and construction work of importance throughout the country. All the stock of the company has been taken by Stone & Webster and their associates.

1889.

PROF. W. E. MOTT, *Sec.*, Mass. Inst. of Technology, Boston.

The annual dinner and reunion of the class was held at Young's Hotel, Boston, on Tuesday, June 5, the following men being present: Thurber, Kilham, W. L. Smith, Loring, Howard, Pickering, Hobbs, Lewis, Hollis, Mott, E. E. Pierce, Laws. After the dinner some time was given to the discussion of general Institute affairs, especially as concerns modification of the various course schemes with a view to increased efficiency of instruction. The resignation of Prof. F. A. Laws as secretary was presented and accepted, and Prof. W. E. Mott, of the Institute, was elected to fill the vacancy. Adjournment was had to Symphony Hall, where '89 did its best to add to the good cheer of "Tech night" at the Pops.—L. H. Kunhardt has been recently elected to the position of a vice-president of the Boston Manufacturers' Mutual Fire Insurance Company, taking the place of Mr. Joseph P. Gray, of the class of '76, who, following the death of Mr. Edward Atkinson, was chosen president. Mr. Kunhardt goes to the larger field after nearly sixteen years' connection with the inspection department of the Associated Factory Mutual Fire Insurance Companies, during which time he has been connected with the general plan, engineering, and inspection work, thus having a thorough foundation for his new duties. The Associated Companies, of which the Boston Manufacturers is one of the largest, have for years been the leading exponents of the best methods of fire protection and loss prevention. The result of bringing scientific methods to bear upon the problem has been that the cost of insurance of first-class manufacturing properties and storehouses has been reduced

Digitized by Google

to a point lower than has ever been possible by any other method.—The Inspection Department of the Associated Factory Mutual Fire Insurance Companies, of which E. V. French is engineer, has recently been developing a fire-service meter. The problem was of considerable complexity, for it was necessary to make a meter which would measure small flows as well as large ones, would cause but a small friction loss, and at the same time could not under any possible conditions obstruct the service in a way to interfere with the supply needed at time of fire. The details have been successfully worked out, and, when the device was explained to the New England Water Works Association a few months ago (*Transactions of the New England Water Works Association*, vol. 19, No. 3), it met with very general favor. No such meter has ever been developed before, although the call for it has been quite constant for some years among those interested in water-works systems.—W. H. Kilham reports that his firm have in progress quite a large number of buildings, including an eleven-room school-house in the town of Marblehead, and an addition of an entire seventh story to the Technology Chambers. This latter work involves a raising of the roof, and has quite a number of interesting constructional features. Kilham and Hopkins have been selected by the Building Committee of the First Congregational Church of Hyde Park, Mass., of which W. W. Lewis, '89, is clerk, to be their architects for a large new church with a seating capacity of about 700, which will cost about $50,000. This church will have a complete equipment of Sunday-school classrooms, banquet halls, kitchens, and everything else connected with the work of a large congregation. The firm are just completing a large summer place at Tamworth, N.H., for ex-President Cleveland.—The *Engineering Magazine* for May, 1906, contains the abstract of a paper presented at a recent meeting of the Pacific Coast Railway Club, by G. M. Basford, on "The Development of the Large Locomotive." In this paper the rapid increase in locomotive dimensions and weights during recent years is interestingly discussed:—

This rapid advance in weight and power is too general to be anything but a principle in American locomotive practice, and it is a principle which com-

Digitized by Google

pels the most careful consideration and deepest thought of those who decide questions of design, as well as those who bear the responsibilities for other improvements in equipment and maintenance facilities, in the advance of which the locomotive now stands. . . . Because of the increasing weight of cars and trains we must have large and powerful locomotives. This fact seems to be sufficiently demonstrated. Whether they are in every respect popular or not, they constitute an economic necessity in present-day conditions. It seems to be altogether improbable that there can ever be a pause in the advancement to more powerful units, and, as long as the country supplies such increasing quantities of commodities to be moved, we cannot go backward in the power to move them.

Mr. Basford brings out a very important point, and one which has not been given sufficient consideration, namely, that the best results cannot be expected by increasing the size of the locomotive without making a corresponding improvement in the conditions under which it is used.—William Lincoln Smith has recently been appointed municipal inspector of wires in the town of Concord, Mass.—O. W. Pickering is now consulting chemist with the Fibaloid Company of Quincy, Mass. His address is 20 Lennox Street, Springfield.—F. W. Ranno is with the Ranno Saddlery Company, 145 South Main Street, Manchester, N.H.—Mr. L. W. Smith presents Master Philip Loring Smith.

1890.

GEORGE L. GILMORE, *Sec.*, Lexington, Mass.

In reply to one hundred and fifty notices mailed to the members of the class relative to "Tech night" at the Pop, replies were received from only forty-five. Unfortunately, most of them were regrets.—The class dinner was held at the Algonquin Club, and the following six were present: Atwood, Packard, Mossman, Tripp, Hayden, and Gilmore. After the dinner, in Charlie Hayden's new Pope-Toledo we went to the Pop, where we were joined by Burley and Goodwin. Miss Maltby was present in the gallery.—Atherton Loring has been blessed with a daughter, born May 13.—G. C. Emerson is with the United States Geological Survey, and at present is located in Corbett,

Digitized by Google

Wyo.—G. T. Voorhees has been in San Francisco since the earthquake. His mail address is now The Engineers' Club, New York.—W. L. Bowker is superintendent of construction with Joseph H. Wallace, C.E., mill architect and hydraulic engineer, with office in New York.—H. P. Spaulding was in Venice during May, goes to France early in June, then to Holland and England, returning the last of July.—C. O. Churchill is now with the Fairbanks Company, 416 Broome Street, New York.—Mr. John O. DeWolf was a member of the Reception Committee of the New England Cotton Manufacturers' Association that held its annual meeting and banquet in Boston the last of April.—A. H. Rogers, who for the past ten years has been in Mexico, but is now located at 71 Broadway, New York, expected to be at the Pop, but owing to a fire in the Silverton Lake Mines, he was obliged to go to Silverton, Col., at once, and will not return before the middle of June.—Mr. S. A. Moss is now at Marysville, Cal.—Rev. George F. Weld, rector of St. John's Episcopal Church of Hingham, who was ill all winter and lost one leg by amputation, returned to Hingham about the middle of April.—Calvin W. Rice has just been elected assistant to the secretary of the Society of Mechanical Engineers, and will doubtless do full justice to the opportunities offered by this important and honorable post.—The following clipping is from the Boston *Herald* of April 17, 1906:—

A notable list of Easter weddings was brilliantly ushered in yesterday afternoon by the marriage of Miss Mary Blanche Linder, of Beacon Street, to Professor Harry M. Goodwin, of the Massachusetts Institute of Technology, at the Arlington Street Church.

The bride, a pretty brunette, was handsomely gowned in white moiré, Milanese lace, and wore a bouquet of bride's roses. The maid of honor was Miss Florence E. Goodwin, sister of the groom, and the best man was Professor George E. Hale, of the Carnegie Observatory, Pasadena, Cal.

The ushers were Messrs. George L. Gilmore, of Lexington, John H. Harwood, of Boston, John F. Linder, brother of the bride, Professor Arthur A. Noyes, Dr. Maurice de K. Thompson, Jr., and Professor George V. Wendell, of the Institute of Technology, Dwight M. Prouty, of Chestnut Hill, and Albert R. Whittier, Jr., of Milton.

Digitized by Google

The ceremony, which was performed by the Rev. Paul Revere Frothingham, was followed by a small reception by the bride and groom at the Beaconsfield. Mr. and Mrs. Goodwin will reside at 322 Tappan Street, Brookline.

1891.

HOWARD C. FORBES, *Sec.*, 4 State Street, Boston.

This is the fifteenth year since the class of '91 graduated. In all thirty-seven men came together for the different events. The ball game at the Country Club, Brookline, drew 21, the class dinner 31, and the Pop Concert 19. The class met on Monday morning, June 4, at 9.30, at Park Square, and went by special car and connecting barges to the Brookline Country Club. (Bird, Birks, Bowen, H. C. Bradley, J. Campbell, Cunningham, Chase, Damon, Dana, Dart, Dunham, Fiske, Forbes, Fuller, Garrison, Goodwin, Hatch, Highlands, Spooner, Trowbridge, Wason, Young.) Cunningham had gone to the club earlier in the morning, and, when we arrived, the field was ready for the ball game. Fat men's baseball is the regular game with shorter bases, a ball somewhat larger than an ordinary baseball and soft, and short bats. It retains all the interest of baseball, but is free from the smashing-up features. The final arrangement of nines was as follows: "Highballs,"—Goodwin, p; Wason, c; Cunningham, 1 b; Trowbridge, 2 b; Highlands, ss; Young, 3 b; Birks, lf; Dart, cf; Bowen, rf; (J. Campbell, 1 b). "Water Wagons,"—Fiske, p; Spooner, c; Garrison, Capt., 1 b; Chase, 2 b; Forbes, 3 b; Dana, ss; H. C. Bradley, lf; Fuller, rf; Bird, cf; (Damon, rf); scorer, Dunham. The umpiring was done by everybody. The "Highballs" won by a score of 15 runs to 10 runs. This was due to several things. In the first place undue influence was used to secure runs by the "Highballs" through the premium awarded for each run in the form of drink checks. Every man made a run. Wason made four, and Cunningham three. Another thing that contributed to the success of the "Highballs" was the fact that they didn't put in Highlands to pitch sooner. Only at the last innings was Highlands allowed to pitch, and he was rapidly

Digitized by Google

being knocked out of the box when the game ended. Wason's ability behind the bat to reach everything in sight also contributed to the victory. The "Water Wagons," on the other hand, were really the better nine. Under the guiding influence of their captain, without the stimulation of anticipated "checks" and without undue hilarity, they played like perfect gentlemen, and were rapidly coming as the game was called. Another inning or two undoubtedly would have seen them ahead. The score by innings was as follows:—

	1	2	3	4	5	6	7	8	9	
Highballs	4	4	2	0	1	1	2	0	1	= 15
Water Wagons	2	0	1	0	0	2	1	1	3	= 10

Three base hits, Wason; two base hits, Wason; left on bases, "Highballs," 8, "Water Wagons," 14; base on balls, Dart (2), Bradley, Bird. The scorer lost count of the errors early in the game. After the ball game, lunch was served at the club. In the afternoon there was tennis by Dana, Goodwin, Wason, and Bird; golf by Birks, Dart, Garrison, Fiske, Forbes, Hatch; and bowls by about everybody else. At seven o'clock came the class dinner at the Algonquin Club, at which the following were present (in the order of sitting): Rooney, Wason, Chase, Bradley, Bird, Cunningham, Fiske, Spooner, Bryant, Bunker, Young, Vaillant, J. Campbell, Dart, Alley, Trowbridge, Dunham, Goodwin, Bowen, Birks, Douglass, Wilder, Wilson, Tyler, Forbes, Garrison, Howland, Hatch, Walker, Dana, Damon. Mr. Garrison's term as president expired by limitation (being the third year in office), and Mr. Cunningham was elected president for the three ensuing years. Several miscellaneous matters were acted upon. The date and price of the class dinners was left to the judgment of the Executive Committee (president and secretary). A motion to raise the class dues to one dollar per year (now fifty cents) was lost,—16, no; 14, yes. The president was directed to appoint a committee of three to consider an appropriate celebration for the twentieth reunion, and to send out a circular suggesting contributions therefor. The average salary was $4,509; and the number of children, 39. On Tuesday, June 5, the class went to the Pop Concert, "Tech night." The following were there: Alley, Birks,

Digitized by Google

Bradley, Bryant, Burton, Campbell, Cormier, Damon, Dana, Forbes, Fuller, Garrison, Goodwin, Hall, Kimball, Tappan, Trowbridge, Wilder, Wilson. Dunham, of Kansas City, was the man from the greatest distance. Birks came down from Montreal.

1892.

PROF. WILLIAM A. JOHNSTON, *Sec.*, Mass. Inst. of Technology, Boston.

The following men were present at the class dinner held at the Copley Square Hotel, Tuesday, June 5: Curtin, Derr, Douglas, Fuller, Hutchinson, Ingraham, Johnson, H. L., Johnston, Locke, Metcalf, Potter, Wendell. The officers elected for the ensuing year: president, Leonard Metcalf; first vice-president, John A. Curtin; second vice-president, J. Scott Parrish; secretary-treasurer, William A. Johnston; assistant secretary-treasurer, Lewis P. Cody. After dinner the party adjourned to the Pop Concert, and were joined by Chase.—The secretary has received à copy of *Printing Art*, of which H. L. Johnson is editor. The number contained several fine examples of process printing.—C. E. Fuller, C. F. Park, and W. A. Johnston were advanced to the grade of Associate Professor of Mechanical Engineering at the meeting of the Executive Committee held in April.

1893.

FREDERIC H. FAY, *Sec.*, 60 City Hall, Boston.

The thirteenth anniversary of the graduation of the class was observed on Commencement, June 5, with a programme differing somewhat from that of the last three years. Being unable to obtain our usual quarters at the Brunswick for the spread and dinner, owing to the Convention of the American Medical Association in Boston that week, '93, like most of the other classes, gave its spread in Engineering A. The annual dinner, at the Plaza, was held jointly with our good friends of '98, this in itself proving an agreeable de-

Digitized by Google

parture from our custom of dining alone. Formal speaking was dispensed with for lack of time, and at the conclusion of the dinner the two classes went to Symphony Hall, and together marched upon the floor at the annual "Tech night" Pop Concert. At the business meeting preceding the dinner, officers were chosen for the ensuing year, as follows: president, Leo W. Pickert; first vice-president, Henry A. Morss; second vice-president, George B. Glidden; secretary-treasurer, Frederic H. Fay; assistant secretary, Grosvenor T. Blood. Pickert and Morss were last year first and second vice-president, respectively, and the secretaries were re-elected. The '93 men in attendance at the celebration were Barnes, Bemis, Blood, W. A. Clapp, Crosby, Dawes, Emery, Fay, F. B. Forbes, Glidden, Keyes, A. L. Kendall, Latham, H. A. Morss, W. B. Page, Pickert, J. H. Reed, Taintor, Tomfohrde, Tucker, and Wilson. Mr. Rand, the popular bursar of the Institute, was our guest. The member present from the greatest distance was James A. Emery, of Birmingham, Ala.—S. H. Brockunier is mining engineer of the United States Brick Company, his address being Kaaterskill Paving Brick Company, Catskill, N.Y.—Edward M. Hagar, for several years manager of the cement department of the Illinois Steel Company, manufacturers of "Universal" Portland cement, has recently become president of the Universal Portland Cement Company, 1057 The Rookery, Chicago.—Harry N. Latey has recently been elected a member of the American Society of Civil Engineers. In the fall of 1893 Latey entered the employ of the Westinghouse Electric and Manufacturing Company at Pittsburgh, and the following year was sent to the company's St. Louis office. From 1895 to 1898, as engineer of that office, he had charge of all car equipment work done in the various car-shops in St. Louis, as well as the installation of the electrical apparatus in the power plants of the Lindell Railway, Terminal Railway, Ely-Walker Company, and other plants. For the next two years he was in the employ of the Manhattan Railway Company, New York, first as principal assistant engineer to George H. Pegram, consulting engineer, in the design of civil and electric engineering work, and later as electrical constructor engaged upon the actual equipment of the road. From January, 1901, to No-

Digitized by Google

vember, 1904, Latey was principal assistant engineer on the electrical equipment of the New York Subway, having actual charge of all electrical design and construction until the road was put into operation. Upon the latter date he was made electrical engineer of the Subway Division of the Interborough Rapid Transit Company, and at present is in charge of the entire system in that capacity. Latey's address is Park Row Building, New York City.—For the third successive year the 1906 "Tech night" Pop Concert was ably and successfully managed by an alumni committee, headed by L. W. Pickert, '93, as chairman.—Charles M. Spofford, professor of civil engineering at the Brooklyn Polytechnic Institute, is in Boston for the summer, engaged in consulting bridge engineering for the Boston Elevated Railway and the city of Boston.

1895.

H. K. BARROWS, *Sec.*, 6 Beacon Street, Boston, Mass.

The annual dinner of the class was held on June 5 at the American House, there being present eighteen men, as follows: Barrows, F. A. Bourne, Churchill, E. H. Clapp, G. Clapp, S. S. Clark, Defren, Eveleth, Hall, Hurd, Loring, Lothrop, Miller, Newell, C. H. Parker, Rockwell, E. A. Tucker, W. S. Williams. A business meeting at 6 P.M. preceded the dinner, with President E. L. Hurd in the chair. *It was unanimously voted* to amend Article I. of the constitution so as to make eligible to class membership any student who has appeared upon the records of the Institute as taking one or more subjects with the class. A notice of this proposed change is to be sent to all members (as thus re-defined), to obtain an up-to-date list. It was further voted that at the beginning of every year the secretary-treasurer shall request each member to forward one dollar ($1), to be considered as "annual dues." The class voted to contribute one or more panels toward the further restoration of the Huntington Hall frieze, at a cost of approximately one hundred dollars ($100). A nominating committee of three was appointed by the chair, and they reported the following nominations: president,

Digitized by Google

E. A. Tucker; first vice-president, G. A. Rockwell; second vice-president, A. C. Jones; secretary-treasurer, H. K. Barrows. *It was voted* to empower the secretary-treasurer to cast one ballot in favor of the above list, and they were accordingly declared elected. After a vote of hearty thanks to the retiring Executive Committee, President E. L. Hurd, and Secretary-treasurer W. T. Hall, the class adjourned to the dinner. This was a most enjoyable affair, and all seemed to find numerous topics of mutual interest. After a brief rehearsal of '95's now famous siren yell, the class adjourned in a body to Symphony Hall, and participated in the usual exercises and festivities of "Tech night" at the Pops.—Azel Ames, Jr., has been appointed signal engineer of the electric zone of the New York Central & Hudson River Railroad. His address is now Army and Navy Club, New York City.—A. L. DeJonge reports change of address to 15 Smith Terrace, Stapleton, Staten Island, N.Y.—T. H. Wiggin (address 299 Broadway, New York) writes as follows to the secretary:—

Autobiography is distasteful to the ordinary man, especially to the nomadic municipal engineer who follows "the circuit," and has his history and antecedents to write up for every contemplated change; but as a critic of class spirit, I acknowledge the corn.

First it was Metropolitan Water Works of Massachusetts, then it was proposed additional water for New York, then it was filters for Pittsburg, and now it is, we hope, really and truly more water for New York. There were sundry minor matters to fill the intermissions when the play stopped, but the municipal nomad turns up on each new big job, and '95 I. is always well represented. To put it a little more statistically, T. H. W., 1895 I., resigned March 1 the position of principal division engineer in charge, under Mr. Morris Knowles, '91, chief engineer of design and construction of Pittsburgh Filtration Plant, to become senior designing engineer in the Board of Water Supply of New York City, reporting to Mr. A. D. Flinn, department engineer. Reasons, better $ appreciation of service.

—A. Geiger, Jr., is now at 87 Milk Street, Boston, Mass.—W. F. Patten is now with the Chicago Telephone Company, Chicago, Ill. He writes as follows to the secretary:—

Digitized by Google

You are a great nuisance, but nevertheless I will answer you. In fact, I had started to do so after getting your first letter, but have been very busy in my new position. I hope the following will appease you:—

1. Not married.
2. Politics indefinite.
3. No church sympathies.
4. Member of Savin Hill Yacht Club, and expect to be a member of Illinois Athletic Club.

I entered the employ of the American Bell Telephone Company (now American Telephone & Telegraph Company) in July, 1895, taking student course of construction, and spent six months in it. This covered observations and some work in all departments of telephone company. Dug post-holes (part of one hole), climbed poles, and operated at switchboard. Entered engineering department of American Telephone & Telegraph Company January, 1896, where I stayed until April 9, 1906. The work covered general telephone engineering, special studies, and consulting engineering for the licensee companies. In connection with this I travelled to about thirty States, being away a total of perhaps a year. Spent three months in California, most of it in San Francisco, and planned much of the plant that has just gone up in smoke. In 1900 spent a month on a vacation trip to Jamaica that I enjoyed very greatly.

My principal amusement was yachting, and have taken about thirteen cruises, covering the coast from Newport to St. John, N.S., in a 27-foot cat. Have sold my boat since coming out here, and bought an automobile.

I entered the employ of the Chicago Telephone Company April 9, 1906, as first assistant engineer, so cannot tell you much about this new work yet.

If you must have something more than this, will be glad to answer some questions, but could not promise to answer all.

—Gerard Swope has also moved to Chicago, and is with the Western Electric Company at 259 South Clinton Street.—H. D. Jackson has moved his office to 4 State Street, Boston. His specialty is consulting electrical engineer for street railways, electric light plants, and electrolysis of water and gas pipes. At present he is trying to convince the town of Wrentham that they need an electric light plant, and also the town of Danvers and Peabody that their plants need a thorough overhauling.—P. M. Churchill has opened an office at 6

Digitized by Google

Beacon Street, Boston, to carry on a general engineering business, specializing in the development of water powers, irrigation projects, street railways, topographic and hydrographic surveys. He left the War Department in 1902, and entered the Hydrographic Branch of the Geological Survey. He was located at Kingston, N.Y., until the next spring, when he was transferred to the Reclamation Service. On this work he was first in charge of surveys in connection with the Shoshone irrigation project. After some time in the Denver office of the Reclamation Service he went to North Dakota on reconnaissance connected with irrigation projects there and investigating the utilizing of lignite for fuel. During the season of 1905 he was in charge of the Williston district projects, which are just about beginning construction at this time. He resigned his position to go into private work in February of this year.—In starting in on his duties for the coming year, the secretary wishes to appeal to all members of the class of '95 (keeping in mind what that now includes) to help in making our section of the REVIEW one of the best and most complete of the various classes. He will do his best to bring this about, but it will not be possible without the hearty cooperation of all. Be on the lookout for items of class news, especially regarding men who are far away and not closely in touch with Institute affairs. Don't bother to write finished statements, but send in a rough draft. Use lead pencil and postal card, if you please, but send in something once in a while! When you come to Boston, give the secretary five minutes of your time, and tell him the news.

1896.

EDWARD S. MANSFIELD, *Sec.*, 70 State Street, Boston.

The '96 "Decennial" was held at Gilman's camp, Ipswich, Mass., from Friday, June 1, to Monday, June 4, about noon, on which day the surviving members of the class sorrowfully broke camp and wended their way back to more conventional civilization. It is needless to say that '96 did itself proud in this her decennial celebration, and the class spirit waxed strong and enthusiastic, and it

Digitized by Google

is hoped that the effect may be felt for many years to come. A complete history of the celebration will be included in the decennial catalogue to be published later. The following men were present during the whole or a part of the time: H. S. Baldwin, H. W. Brown, Fisk, F. W. Fuller, Gilman, Grush, Hersey, Knight, Locke, Maclachlan, Mansfield, Partridge, Raynolds, Rockwell, Root, Tappan, Thompson, Wise. On Friday evening, June 1, at the reception to the Senior Class, a delegation from '96 presented a stunt in the form of a gift to '06. This consisted of an appropriately decorated casket containing a globe of the earth, a bar of gold, a house, and an automobile. The globe, a symbol of their field of labor, the bar of gold, a symbol of wealth, the house, symbolic of home and happiness, and the automobile, representing pleasure and earthly enjoyment, all having been in the custody of the class of '96 for ten years, were bequeathed to '06 as their rightful heritage, for their use and behoof forever. The class meeting and dinner was held at the Hotel Nottingham on Tuesday evening, June 5, at 6.30 P.M. The class officers were re-elected for the ensuing year. The following men, thirty-eight in number, were present at the dinner: H. S. Baldwin, Barker, Batchelder, Brackett, Callan, R. A. Davis, J. M. Driscoll, Fisk, Frank, F. W. Fuller, Gilman, Grush, Hall, Harkness, Hatch, H. R. Hedge, W. R. Hedge, Hersey, Hewett, Huey, Hultman, Jackson, Knight, Leland, Lythgoe, Maclachlan, Mansfield, Melluish, Nevin, Partridge, Pingree, Rockwell, Root, Sanderson, Sjostrom, Thompson, Tucker, Wise. After the dinner the men marched up to the "Pop" Concert, where they were joined by others of the class, and where the decennial celebration of the class of '96 gloriously ended.—Charles P. Moat was married to Miss Helen Ferguson, of Burlington, Vt., on Saturday, May 5.—R. A. Davis and Nevin both admit that they are engaged, although we have as yet received no further particulars.—On Dec. 24, 1905, Helen Farrar Hyde came into the home of C. G. Hyde for a long visit: we have, however, but just received this information. '96 men will please notify the secretary of such important events by the next post.—The Las Vegas (N.M.) *Daily Optic*, under date of March 27, 1906, published the following sketch of Raynolds, who had won a political fight for re-ap-

Digitized by Google

pointment to the position of Secretary of the Territory of New Mexico:—

J. W. Raynolds was born in Pueblo, Col., in 1873. He moved with his parents to Las Vegas in 1876, receiving his early education in the schools of this city. In 1891 he entered the Massachusetts Institute of Technology, taking the course in Mining Engineering, and graduating in 1896. In December of that year he married Miss Baum, of Omaha. In 1898 he accepted a position in the First National Bank in this city. Upon the appointment of George H. Wallace as Secretary of the Territory, Mr. Raynolds went to Santa Fé to accept the office of Assistant Secretary. Upon the death of Secretary Wallace in 1901 Mr. Raynolds was appointed by President McKinley to fill out the unexpired term. In December, 1901, he was appointed by President Roosevelt for a term of four years, and in December, 1905, he was reappointed by President Roosevelt, making his third appointment to that office.

In politics Mr. Raynolds is a consistent Republican who is devoted to the principles and success of his party. Though still a young man, he combines with the strength and vigor of youth the ability and sagacity of a man of years. He is broad-minded, of a liberal education, has travelled extensively in this country and Europe, and possesses excellent business habits and methods.

He has thoroughly systematized the work of his important office, and has established it on a practical business basis.

Mr. Raynolds is of unimpeached integrity, is courageous in the performance of his duty, and is highly esteemed throughout the territory.

—G. C. Hall, formerly living at 59th Street and 11th Avenue, New York City, has changed his address to 35 Brewster Street, Cambridge, Mass.—J. H. Pillsbury, formerly in United States Engineer's Office at Jacksonville, Fla., is now with the Grand Trunk Pacific Railway at Prince Rupert, B.C.—Mortimer C. Priest has associated himself with the Boston *American*, 80 Summer Street, Boston, home address 389 Harvard Street, Brookline, Mass.—Carl E. Van Jungenfeld, formerly of New York City, died the latter part of this spring. The exact date has not reached us.

Digitized by Google

1897.

JOHN A. COLLINS, JR., *Sec.*, 74 Saunders Street, Lawrence, Mass.

Several informal dinners were held during the month of May at the Technology Club in connection with the solicitation of contributions to the Technology Fund. Among those who attended were Hopkins, Fuller, Blood, Humphreys, Breed, Loveland, Norris, Bradlee, and Pike. These men formed themselves into a special committee to do what they could before June 1. The result was quite gratifying, the total amount pledged by '97 men being about $7,000. This represents the contributions of seventy men.—The members of the class will regret to learn of an accident happening to Jay E. Tone, by which his left hand was severely injured, that member being caught in a revolving mill that was grinding vanilla beans.—William K. Fairbanks, formerly assistant superintendent and purchasing agent of the Bigelow Carpet Company, Lowell, has been made agent of the same concern. Mr. Lyon, the former agent, goes to Lawrence as agent of the Wood Worsted Mill.—Dr. Mortimer Frank, Course I., now a prominent physician in Chicago, came on to Boston to the meeting of the American Medical Association. On Tuesday afternoon he read a paper, the subject being "Normal and Sub-normal Color Vision in its Relation to Distant Signal Lights."—The annual class dinner was held on Tuesday evening, June 5, at the Hotel Oxford. The following men were present: Hopkins, Fuller, Hosford, Eames, Bliss, Breed, Collins, Carter, and Fairbanks. A most enjoyable time was spent. After the dinner the men proceeded to the Pops. Here Edmands and Loveland joined the crowd, and '97 was represented in the doings of the evening as well as eleven members could do it.

1898.

PROF. C.-E. A. WINSLOW, *Sec.*, Hotel Oxford, Boston.

The class of '98 held its eighth annual celebration on Commencement Day, June 5. The plan of holding the afternoon spreads in

Digitized by Google

the Engineering Building proved a great success, and '98, '93, '05 and other classes enjoyed a very pleasant two hours. At 6.30 '98 adjourned to the Plaza for its annual meeting and dinner. The present Class Committee, Coburn, Godfrey, and Winslow, was continued for another year. At the dinner the following members of the class were present: Bigelow (honorary member), Humphrey, Godfrey, Coburn, Putnam, Wright, Dawes, Dodd, Butcher, Lambert, Morgan, Goodrich, Edgerley, Babson, Torrey, Russ, Robinson, Bennink, Clifford, Curtis, Danforth, McIntyre, Perry, and Winslow. Mr. F. P. Fish, of the Executive Committee of the Corporation, was the guest of the class.—Anthony writes as follows:—

You know I have been away for five years, and it is going on three years since I have been East. Perhaps it would be permissible to give you a little of my history during that time. Four years ago I wandered into the offices of the American Radiator Company in Chicago, and applied for a position. After a time I was successful in securing an opportunity, and was sent to one of our large plants in Buffalo to learn the business of manufacturing radiators, and for nearly two years I was an ordinary laborer in all the various departments of our great business. It was hard, fierce work, but it paid in the practical knowledge gained by having to earn my living as a moulder, core-maker, melter, machinist, pattern-maker, etc.

Since then I have served as assistant superintendent of our plant in St. Louis, Mo., then as superintendent of our steel plant in Springfield, Ohio, and now I am manager of one of our largest plants located here in Titusville, Pa.

Last fall I deserted the ranks of the Bachelors' Club, of which I was a charter member, and married a girl from the Golden West, and since then I have been gradually developing into a fairly well-civilized member of society.

A canvass of salaries and incomes from professional services made at the class dinner showed that the incomes of sixteen men ranged between $900 and $6,000, and averaged $2,660.—Dawes has been elected a director of the Massachusetts Electrical Contractors' Association.—Perry has a son, Edmund Williams, born Jan. 11, 1905.—Nesbit is chief clerk and law clerk in the solicitor's office of the

Digitized by Google

Department of Commerce and Labor, Washington, D.C.—Strickland has been in the construction department of the chief engineer of the Susquehanna Central Railway Company, in charge of location from Clearfield, Pa., to Lock Haven. He is now in the engineering department, in charge of all surveys, etc. His address remains care of J. G. White & Co., 43 Exchange Place, New York.—B. H. Johnson has moved from Lynn to 15 Summer Street, Hyde Park.—Shaw's present address is 32 Oakland Street, Newburyport.—Tallmadge has recently been appointed associate professor of architecture in the Armour Institute of Technology. A paper by him on the Roman Forum in the Light of Recent Excavations was published in the *Western Architect* for July.—Sullivan became a Master Mason, May 1.—Milliken is studying manual training at the Teachers' College of Columbia.—W. A. Robinson, Jr., was taken into the firm of W. A. Robinson & Co. as a partner March 20, 1906.—Kellogg announces the birth of a son, Kenneth Avery, Nov. 2, 1905.—Wesson has moved to 545 School Street, Lowell.—Newton was married Oct. 10, 1905. He is treasurer of the Newton Paper Company, Holyoke, Mass.—Huntington is president of the Racquette Foundry and Supply Company of Potsdam, N.Y., manufacturers of iron and brass castings and machinery.—Jacoby has a son, Gordon Campbell, born Sept. 6, 1905.—A. L. Davis is now manager of the crucible melting department of the Crucible Steel Company of America at their Park Works. His address is 508 St. Clair Street, Pittsburg, Pa.—Philbrick is now associated with Mr. Robert A. Foster at Spokane, and American Falls, Ida.—Learned was married Oct. 7, 1905. His address is 39 Benton Road, Somerville.—C. E. Lord has been elected president of the Bullock Electric Company of Ohio, though still acting as patent attorney for the company. A son, Charles Carroll, was born March 21, 1906.—Higgins was married in June, 1905, to Mary Lee Blaisdell, of Clinton, Conn. He is now instructor in science in the State Normal School, Danbury, Conn. Ginn & Co. published a "First Science Book" by him in 1905.—W. A. Wilder has returned from Washington, and his present address is 8 Hotel Dale, Roxbury, Mass.—Shook is now general manager of the Central Iron Company at Tuscaloosa, Ala.—Dr. S. F. Jones's present

Digitized by Google

address is 125 East 71st Street, New York.—Muhlig announces the birth of a son, John Robert, born July 5, 1905. His address is 339 North Franklin Street, West Chester, Pa.—Blossom's new address is 419 East 6th Street, Salt Lake City.—Mills is now living at 5343 De Lancey Street, Philadelphia. His business address is 627 Witherspoon Building.—Sherman has been promoted from the position of assistant engineer to be division engineer in charge of the office of the Charles River Basin Commission.

1899.

HERVEY J. SKINNER, *Sec.*, 93 Broad Street, Boston.

The annual dinner and meeting of the class was held at the University Club on the evening of Commencement, June 5. The following men were present: Barry, Blake, Eaton, Hamilton, Kingman, Loud, Sheak, Sherrill, Skinner, Stebbins, Swan, Tufts, Whitney, and Witherell. The resignation of M. S. Sherrill as secretary was presented, and accepted with the regrets of the class. H. J. Skinner was elected as his successor. R. W. Stebbins, E. R. Sheak, and M. S. Sherrill were elected to the Advisory Council for the coming year. After the dinner the class adjourned to Symphony Hall, and joined in the usual celebration of "Tech night" at the Pops. At the hall the numbers were increased by A. H. Brown, Emerson, Harrison, M. S. Richmond, and Rickards.—Edward Johnson, Jr., has recently accepted a position as engineer and superintendent of the San Diego Flume Company, San Diego, Cal.—It is with deep regret that we announce the death of Estelle Williams Mork, wife of Harry S. Mork, on April 25, 1906. Mrs. Mork leaves besides her husband a baby girl, Miss Marjorie Williams Mork. Mr. Mork has the deep sympathy of the entire class.—Arthur I. Kendall, Ph.D., recently addressed the class in sanitary science and public health at the Institute on the Care of the Personal Health in the Tropics. Dr. Kendall is acting chief of the Board of Health Laboratory, Isthmian Canal Zone.—William Scott Matheson and

Digitized by Google

Miss Sarah MacDonald were married on May 16, 1906, at Boston. After a short wedding trip to Montreal they went to Nevada, where Matheson will try his fortune.—Guy Magee, Jr., is in China, doing engineering work on the Imperial Railroad of China.—W. C. Phalen has been awarded one of the Cabot medals as a reward for gymnasium work. Phalen is in Washington with the Geological Survey. —E. H. Hammond is now associated in business in Norwich, Conn., under the firm name of Hammond, Boynton Paint & Chemical Co.—R. W. Stebbins is now located in Malden, where he is engaged in construction work for the Malden & Melrose Gas Light Company.—C. Gardner Barry is working in the Pennsylvania Railroad Tunnels now being built under the North River. He writes that the work is intensely interesting, and that he has only experienced two slight attacks of "the bends," which result from working under air pressure.—W. A. Kingman has returned to the vicinity of Boston, and has taken a position as assistant chemist for the Dennison Manufacturing Company at South Framingham.—John W. Woollett was married to Miss Constance Somers at Andover, Mass., April 25, 1906. They will make their home in Troy, N.Y., where Mr. Woollett is engaged as an architect in partnership with his brother. —F. A. Watkins, who is with the Western Electric Company, has recently been transferred from Chicago to New York.

1900.

RICHARD WASTCOAT, *Sec.*, Dedham, Mass.

At the reception to the graduating class held Friday evening, June 1, Smith, Stearns, and Wastcoat had the pleasure of congratulating Leeds on getting his degree. Leeds (IV.) left at the end of the third year, entered West Point, and graduated one of the honor men of his class, and now ranks as first lieutenant in the Engineering Corps of the army. This year he came back, and completed his final year in Course I., graduating with '06.—In common with the other classes we held our annual dinner on Tuesday evening, June 5. This year

Digitized by Google

we met at the Hotel Victoria, corner Newbury and Dartmouth Streets, and talk about your dinners, the frozen pudding (Charles had a double order) was worth the price of admission! Thirteen of the fellows showed up, and Course I. headed the list with Charles, Jouett, Russell, Stearns, Wastcoat; Course II. had Burnham, Keay, Walworth; Course III., Emery; Course IV., Beekman, Kattelle; Course VIII., Brock; and Course XIII., Wentworth. Immediately after the dinner the meeting was called to order, and Jouett was chosen chairman. The report of the last meeting was read, and the report of the Nominating Committee on officers showed the re-election of Wastcoat as secretary and Stearns as vice-secretary, with 50 votes each, and of Osgood, Walworth, and Draper as members of the Executive Committee, with 34, 24, and 24 votes, respectively. A new nominating committee, consisting of Wentworth, Russell, and Charles, was chosen to nominate officers for next year. Then the class adjourned to the Pops. It was the same old Pops, only noisier than last year, and we added our portion, coupled with a "balloon ascension"; and Osgood, Learnard, Graff, Weeden, Hapgood, and Glover were added to our numbers. It seemed good to get together again, especially as it was the first appearance of some of the fellows since graduation. Here's hoping we may see more present next year.—Only two weddings to report this time. Lewis Arthur Miller was married to Miss Bess Anderson Lambert Monday evening, May 21, at six o'clock, in the First Baptist Church at Lambertville, N.J. Another Course I. man whose troubles are just beginning. And Cayvan (VI.), the same old boy as ever, writes as follows:—

L. L. Cayvan married Anna E. Place, of Kansas, last night (March 30). Yes, I went and did it, boys, last night, and my advice to all the bachelors is "to go thou and do likewise." I have been on the road as assistant manager of the operating department of the National Biscuit Company for some time, and in that capacity stay ten days or three months in a town (where we have a plant), correcting the errors of each factory. The job was lonely: it won't be any more, for my wife goes with me from now on. No more news at present, as I haven't seen a Tech man for a long while. With best wishes to all the boys of 1900, I am always L. L. Cayvan of 1900.

Digitized by Google

May we offer congratulations to both Miller and Cayvan, and trust that they will uphold the reputation of the other married men of the class?—We were all glad to see Jouett (I.) present at the dinner, as he is just recovering from a long siege of illness. He has been with the New York Central in New York City since graduation. Last fall he contracted pneumonia, and was seriously ill for a number of months, which necessitated his giving up work and returning home. He is now on the high road to recovery, and is looking in fine condition. He is going to put in some time at the shore and mountains before taking up work again, in order to get his strength back.—Wentworth (XIII.), who has been in Washington, D.C., the past few years, is now down at the Fore River Ship and Engine Works at Quincy, inspecting work being done for the government. Wentworth says it seems good to get back to Boston again. He lays claim to having the honor of being the father of the "class boy." So it is up to the married men to show their hands.—Perry (II.), who is now out in Grand Rapids with the Macey Company, writes:—

As for myself, I feel younger than ever, even though the years since we left Tech are six. I am about to sever my connection with the Macey Company, and take a new position as business manager of the Board of Education in this city. The new city charter has provided for an entire reorganization of this board on a business basis. I have been asked to assume charge of this reorganization, and also of the construction of new buildings in progress and the maintenance of old buildings. It isn't safe to predict how many gray hairs I shall have when the job is completed. Mrs. Perry is well, and we are looking forward to some good canoeing trips in the northern part of this State. [The Secretary cuts out the next sentence, as it is a reflection on himself.] Please remember me to the fellows of 1900 at the annual banquet, and keep a good hand-shake for yourself.

—George M. Holbrook (V.) has been appointed superintendent of the lard refinery of Armour & Co. at Fort Worth, Tex.—Russell (I.) is with the Charles River Dam Commission for the summer.—Keay (II.) delivered a lecture in May before the Society of Arts on "Tests with a Dynamometer Car" with which he had been connected

Digitized by Google

on the Boston & Maine Railroad.—Bowditch (I.) reports the arrival of a bouncing boy, now about four months old. Bowditch says he sleeps mostly during office hours nowadays.—N. J. Neall (VI.) has opened an office at 12 Pearl Street, Boston, as consulting electrical engineer, making a specialty of lightning protective apparatus, high tension alternating current installations, and on the rehabilitation of existing electrical plants. The last few weeks Neall has been taking in conventions of electrical societies in Chicago and Atlantic City.—Raymond D. Borden is located in Fall River, Mass., and is in business for himself, handling cotton yarns, mills bandings, tubular braids, spool tapes, and cotton rope.—Price (IV.) has been transferred from New York to the Structural Department, Pencoyd Drawing Room, American Bridge Company, and he and Mrs. Price are at home at 427 Roxborough Avenue, Philadelphia.—Stearns (I.) sailed for Europe the first of July for a ten weeks' trip, and expects to tour England in a motor car for a part of the time.—William I. Wyman, of the United States Patent Office, is to take a trip abroad this summer, visiting England, France, Germany, and Switzerland. —Harry Leslie Walker announced the removal of his offices July 1, to 1721 Chandler Building, Atlanta, Ga.—The University Council of Columbia University, New York, has just awarded a fellowship of the value of $650 to Francis C. Lincoln, of New York City.

1901.

EDWARD B. BELCHER, *Sec.*, Malden, Mass.

The secretary regrets that unavoidable absence from Boston caused the class news for the last issue to be greatly neglected, and hopes that members of the class will be of more assistance in the future in furnishing items of interest concerning themselves or their classmates. So many men are leaving Boston that it is difficult to get information of interest to put in this space. Among our own classmates we have lost two of the hardest workers for the welfare of the class: Ellis F. Lawrence and Leonard P. Wood have left to

Digitized by Google

take more lucrative positions, Mr. Lawrence going to San Francisco and Mr. Wood to New York.—Robbins (XIII.), who has been connected with some of the leading automobile concerns, is now in the employ of the H. H. Franklin Company, Syracuse, N.Y., as designer.—Catlan (V.) is at present with the General Electric Company at Lynn, Mass.—Allen (II.) has left the Charles Holmes Machine Company, and is connected with the B. F. Sturtevant Company, Hyde Park, Mass.—Newman L. Danforth, of Buffalo, was married in June to Miss Theodora White Clapp, of Boston.

1902.

FREDERICK H. HUNTER, *Sec.*, 49 Federal Street, Boston.

The annual meeting and dinner of the class was held at Hotel Plaza, Boston, on Tuesday, June 5, 1906. There were present Nickerson, Hooker, Gardner, S. A., Jr., Whitney, R. F., Wemyss, Vaughan, Fisher, Morrill, Millar, Hunter, Davis, H. H., Thurston, Boardman, Marvin, Ritchie, Westcott, Whittet, Stillings. In the absence of the president and secretary, Hooker presided and Nickerson served as secretary.—The resignation of Kellogg as secretary was read, and accepted with regret. Greetings were sent to him at El Paso by wire, and thanks for the good work he has done for the class were adopted by rising vote. President C. G. Mixter and Vice-Presidents Hooker and Gardner were re-elected. Hunter was chosen secretary, with Nickerson assistant secretary. A poll of those present showed an average salary of $1,343, with $2,500 as maximum and $900 as minimum.—After the dinner the class joined with '98 and '03 in cheering and singing the Stein Song, and then adjourned to the Pops. Here arrived, with confetti and "ticker tape" provided by the thoughtful, '02 speedily became, in spite of small numbers, the most energetic band in Symphony Hall, and Stillings drove the band-wagon. Collier, Upham, Sears, Crowell, A. W., and Lewis joined the crowd at the hall, and did their share to keep things moving.—Most of the news that has come to the secretary of late has related to weddings. If these keep on at the present rate, most

Digitized by Google

of our bachelors will soon be thoroughly domesticated.—P. R. Whitney married Miss Helen Reed Jones, of Brookline, Mass., on April 17.—Allyn was married on the same day to Miss Annie Mae Pinkham, of Haverhill, Mass.—Sherman was married on April 25 to Miss Adaline M. Swift, of Belmont, Mass. They are living at 35 Harvard Avenue, Allston.—Stover's wedding to Miss Elma A. Brigham was held in the Park Avenue Church, Arlington Heights, on the evening of June 5. Mr. and Mrs. Stover will make their home on Appleton Street, Arlington Heights.—Williston, on June 6, married Miss Elva Inez Shattuck, of Somerville, They will reside at 26 Warren Street, Somerville, after a wedding trip.—Before this reaches the members of the class Clyde Fruit will also be among the Benedicks. Cards are out for his marriage to Miss Winifred Alice Smith, at Wheaton, Ill. They will take up their residence in Wheaton, where they will be at home at 329 Union Street after September 1.—Less romantic affairs concerning members of the class are noted as follows: Fisher has moved to a new address, 54 Batterymarch Street, Boston. He is local manager for the M. B. Foster Electric Company.—Marvin is with the Holtzer Cabot Company, Brookline, Mass.—C. A. Sawyer, Jr., is at present located in Greensboro, N.C.—Eames is at Sandy Hill, N.J.—Fish is in New York at 25 Broad Street, Room 925.—F. H. Reed has been transferred by the American Telephone & Telegraph Company to New York. His address there is Technology Club.—Pember has left the office of Green & Wickes in Buffalo, and is now with Townsend & Fleming, 1326 Prudential Building, in the same city. His home is 715 Richmond Avenue.—Bertram B. W. Greene, who is now an owner of a sugar estate in Aguirre Central, Porto Rico, published a very interesting letter on Porto Rico, its government, etc., in the Boston *Transcript* of April 4, 1906.—Your new secretary regrets that, owing to the short time between the class meeting and the arrival of the printer's devil, he has not had time to collect more news. He hopes that every member will co-operate in keeping our records up to date by sending in any items of interest about himself or others that he may come across.

Digitized by Google

1903.

W. H. ADAMS, *Sec.*, Polytechnic Institute, Brooklyn, N.Y.

The following changes of address and occupation have been brought to the secretary's attention since the register was published in March: W. C. Avery, 1 Shawmut Park, Newton Upper Falls, Mass., is draughtsman for the Gamewell Fire Alarm Telegraph Company.—Cheney, 878 South Halsted Street, Chicago, Ill., is with Burley & Tyrrell, wholesale crockery and glass ware.—C. B. Cox, P.O. Box, 834, North Yakima, Wash., is an assistant engineer on the Reclamation Service of the United States Geological Survey.—Eaton, Technology Chambers, Boston, is an electrical engineer with the Westinghouse Electric and Manufacturing Company, and is in the erecting department.—Field, 158 Hicks Street, Brooklyn, N.Y., is in the sales department of the Sullivan Machinery Company.—Hayden is with the Bureau of Public Works at Manila, P.I.—Howell, Jacksonville, Fla., is a gas inspector for the Jacksonville Terminal Company.—Lyon, 806 Security Building, Chicago, Ill., is agent in the oil engine department for the De La Vergne Machine Company.—S. G. Porter, La Junta, Col., is a locating engineer for the Holly & Swink Railroad.—Raymond is now at 309 Lumber Exchange Building, Portland, Ore.—Regan is a teacher in the Charlestown High School in Charlestown, Mass.—Ricker, 6 Bigelow Street, Quincy, Mass., is with E. Ricker, Son & Co., granite contractors.—Seyms, York, Pa., is superintendent for A. B. Farquhar Company.—About the middle of May the secretary made a flying trip to Cleveland, Ohio, and while there he looked up Ball. He had just returned from his wedding trip, and was getting settled.—In addition to Ball, Aldrich was married on June 14 to Miss Belle Greenough, of Boston. He has left the Institute, and gone into the gas engine business in Boston.—The secretary has heard from Newman, who wrote that he and his wife were coming East for a vacation, the earthquake having upset his plans.—Lounsbury has gone to Superior, Wis., to take charge of the laboratory in the filtration plant there.

Digitized by Google

1904.

CURRIER LANG, *Sec.*, Michigan Central Depot, Detroit, Mich.

The principal items of news this time concern the annual dinner, which was very successful and very good for the soul, and gave all our members a new tie to bind them to the class of 1904, inasmuch as one more common possession will strengthen the bond between any body of men. What we all gained was merely an annual custom begun by Dr. Pritchett, and observed by each of the members present at the dinner,—the custom of drinking from the Class Day loving-cup a toast "To the Institute." The dinner had been finished, and the whole company had just finished "Prexy for Aye," when a waiter appeared, and set down the loving-cup, covered with dew, before Dr. Pritchett. The President's remarks in proposing the toast were about as follows: —

Boys, you gave me this cup two years ago, at a time when such a token of confidence meant a great deal to me, and gave me new courage. At the time my emotions overcame my voice, and I could not thank you properly, but to-night I have brought the cup, and I wish you to have it each year at your annual dinner, and drink from it this toast: "To the Institute: may she be ever sincere and sturdy and true to her ideals, and may her sons be ever sincere and loyal and never afraid to stand up for what they think is right, whether it is popular or not."

The cup was then passed around the table, each man standing as he drank the toast. No speeches were made at the dinner, and no business was transacted. Charlie Homer acted as toastmaster, and kept things moving. All the old songs were sung in company with 1905, and the old cheers startled the neighborhood. The presence of two classes at the dinner added to the interest and noise. About thirty-five members of 1905 were present, and thirty of 1904. At the spread in Engineering A, before the dinner, 1905 was also allied with us, and did much to help along the good feeling. The celebration at the Pops was about the same as usual, with 1906 up in front, making just as much noise as 1904 did two years ago. No further claims were made at the dinner for the loving-cup that is to be pre-

Digitized by Google

sented to the first son and heir of the class whose father was married after Class Day, and, unless claims are presented very shortly, the cup will go to the son of J. L. Hecht, born Dec. 15, 1905. The general opinion in regard to the money in the class treasury seems to be that it is not enough to worry about. At the dinner the secretary gave each man a slip of paper, and asked him to write down any class news that was of interest, and the following choice bits of information were received as a result: "E. B. Rich has just obtained a position with the J. G. White Company of New York. He has been with the Swan Electric Company of Boston. He is too modest to say this himself, so I am helping him out. Phinney."—"We understand from good authority that Trip (II.), who is with the Walworth Manufacturing Company on Federal Street, has recently received another raise. He is now on time at breakfast every morning. Also Mr. R. M. Phinney, who is with the Swan Electric Company on Pearl Street, is in the same boat. E. B. Rich."—"E. B. Rich has received no raise this year, so sleeps late every morning, and has no time for breakfast before going to work, thus saving money. Tripp."—"I do not consider it modest to write about myself, and, as I have nothing good to say of my friends, I will not write anything more, but just sign my name as a member of the class of '04." And then he forgot to sign it.—"P. S. Sweetser is assistant superintendent of the street railroad in Paducah, Ky. J. A. Haraden."—"W. Burns. Still a hot sport."—"Niles and Gill, '04, have accepted positions in the engineering department of the American Telephone & Telegraph Company, Boston, Mass. Guy W. Eastman, '04, is to be instructor in physics at M. I. T."—"With Boston Rubber Shoe Company in Chemical Department, rooming with M. H. Clark, '03. Am not married or engaged (June 5). Charles R. Haynes."—"E. F. Parker, Jr., will be married June 12, 1906, to Miss Tuttle, of Reading, Mass. C. H. Stebbins will be married June 25, 1906, to Miss Bradford, of Reading. Not for mine on marriage yet. H. W. Stevens."—"From hearsay, Arthur C. Downes is engaged to a young lady in Oberlin, Ohio. Marriage in September. N.B. Please investigate."—"Am going to Iowa City in July to be first assistant bacteriologist to the Iowa State

Digitized by Google

Board of Health and lecturer on hygiene at the University of Iowa. Selskar Gunn,' 04."—"Strange to say, I got my degree to-day, but am still a '04 man. Robert Faulkner is in Versailles, Penn., with Walter Hadley. Moses Brown went to Michigan to survey for Sawyer, Tech '02, on new property. John W. Shaw is surveying for the Grand Trunk Pacific Railroad in New Brunswick. Ralph Hayden, '04."—"Ask H. W. Stevens what the speed limit is. H. S. Kendall."—"Gene Russell, Course I., is at New Haven, Conn., with the New York Central Lines. E. F. Parker, Jr."—The secretary has just lately received a note from the Institute saying that a newspaper has chronicled the death of Gyula B. Manson on June 17, 1906, at Martinez, Ark.—Lee Phillips was married on Thursday, April 19, to Miss Elizabeth Webster Curtis at Maplewood, Mass.—E. F. Rockwood is with the Eastern Expanded Metal Company of Boston, doing office engineering. This company does fireproofing and a good deal of reinforced concrete work.—Richard B. Dole, of the United States Geological Survey, Washington, was married on June 20 to Miss Huldah Humphreys, of Brunswick, Me.—The very latest echo from Cupid's garden comes just as we go to press. Mrs. Ellen Loring Dike, of Braintree, Mass., announces the engagement of her daughter, Frances Elizabeth, to Mr. Merton Leslie Emerson. Ye olde bach hath succumbed.

1905.

R. W. H. LORD, *Sec.*, 248 Tremont Street, Newton Centre, Mass.

The alumni reception was represented by only a few '05 men, about a dozen being present. Of these men H. L. Walker and Bent came from a distance. The class dinner and Pops on June 5, however, brought out a large gathering of our class, there being thirty-five at the dinner and fifty at the Pops. A social hour was spent at the "punch" in Engineering A, where class yells and interclass courtesies were indulged in. The famous anti-merger punch as served by '98 was surely the real thing. The new '05 banner was first displayed at the punch. It is seven by three, royal purple and white. From the "punch" '04 and '05 proceeded to the Oxford, where a

Digitized by Google

completely informal dinner was held, everybody removing his coat and enjoying life generally. No set speeches were given, President Pritchett being the only speaker. Singing and cheering helped digest the food. Ros. Davis was made to sing a verse of "That Awful Tired Feeling," which came forth in the same old style. Several fellows came from a considerable distance to be present at the dinner. Our two class dinners have been rousing successes, and it is greatly hoped that the men will continue to turn out in such goodly numbers. From the Oxford we marched up to Pops, where we were met by another body of '05 men, making by far the largest class of alumni present. Our position this year in the hall was still at the end, but it was the other end. The evening was spent as at last year's Pops, and, when all was over, everybody pronounced the day's gathering a "mighty good time." At the dinner a collection of news was taken, most of the men present furnishing something. Following is a part of the news receipts: H. L. Walker, Eichler, and Landers with Lanston Monotype Works in Philadelphia, and Goldthwait with same company in Boston.—A. H. Smith to be married June 21, 1906.—Gage sailed for Panama May 29.—Prescott was working with Stone & Webster, State Street, Boston, in January.—Whitney has just had an eight weeks' vacation. "Took trip to Florida, Cuba, and Mexico with his family." Other reports say that this is a wedding trip.—Billy Spaulding came to Boston from Buffalo about June 15.—Kenway came from Washington about July 5.—Dan Harrington is getting along well in Wisconsin.—E. H. Bartlett has charge of laboratory and soap plant of the Waldrich Bleachery, Delawanna, N.J.—Saville has been working for the engineering department of the Massachusetts State Board of Health for the past year.—Seaver was present with his degree.—Henry H. W. Keith married during the summer to Miss Eva Guptill, of Boston.—Morse is doing well with the Barker Asphalt Company.—Chester Allen is with construction department of the Big Four Railroad.—Carl Peiler and Perrie Arnold are driving "ginnies" and building chimneys for the Delano Copper Refining Company, Chrome, N.J.—Geckler is working but twenty-four hours a day now. —Glidden is with testing department of the United States Geological

Digitized by Google

Survey at Portland, Ore., and we understand he will return in a few weeks.—Bent showed up from Rochester.—Jim Lambie, tired of bossing hunkies at the Lackawanna Steel Company, has gone with the Wabash Railroad.—Jimmy Paine, with tears in his eyes and a pathetic break in his voice, sent his love to the '05 fellows, and said that he would always regret not being able to be with them on June 5. At least, so says Bent.—Davis and Perkins sat together, and it cannot be said who is responsible for the following composition:—

Perk and Ros are sitting here, and Robbie asks for news.
Perk has two d—d tender toes caused by bum-made shoes.
Ros is still a sand-hog, and works in compressed air (sometimes),
And hasn't yet a wife to pull out his blond hair.

(This may mean that Perk has.)—Many letters have been received from fellows expressing their regrets at not being able to be present at our June 5 exercises. Two letters containing news of members of the class have come. A letter from Charlie Johnston expressed the general attitude of the fellows on the news question. In part it is as follows:—

. . . I am very sorry I cannot be in Boston this June, but, as "Professor Pure Brass" has not, at latest reports, perfected his flying machine, I cannot even make one of those so-called "flying trips." Still, if not present in person I assure you I am with you in spirit. Your news from the class in the last TECH REVIEW was exceedingly interesting, especially Cowper's letter. I would suggest that, when other letters are so interesting, they be published also. I realize how much of a necessity money is for the proper administration of our class affairs, for way back in the Soph year I had a little to do with that end of class matters. . . .

—A note from Beers says that Percival expects to work with the Bell Telephone in Philadelphia.—We have heard from "Bunnie" Loomis:—

. . . I am acting as purchasing agent for the Dallas (Texas) companies, of which there are four. . . . So manage to find enough to keep me busy most of the time.

Digitized by Google

—From Jones:—

The whole '05 bunch has left the Lackawanna except myself, and I gave notice to-day. I am going to Washington to work in the Patent Office, and take up patent law.

Louis Robbe writes his usual interesting letter:—

Dear Bob,—Am sorry I cannot be in Boston this June, as I see no vacation coming my way until late in the fall. I am located here for a few months while our two plants are being remodelled and enlarged. The work is entirely out of doors, and besides it is very interesting and instructive. How goes the work with you? Am glad the assessment is levied, as a little money should be working toward the treasury every little while. I am enclosing my ante, and it is your play. Richmond wrote me that he was back at Tech as an assistant. Robbins is still in Korea, and I hear from him occasionally. At present he is on a prospecting trip up the Korean coast, and then down into the valley of the Yalu River. A great place to see now after the war. Smart met me in Pittsburgh yesterday, and he promises to come up here [New Kensington] over Sunday. He is with the Carnegie Steel Company. Wish the class a joyous celebration, with plenty of "pop" and ginger to it.

—Belding has gone to the Joplin (Mo.) office of the Sullivan Machinery Company.—Crosby is working in the Patent Office in Washington.—Barnd is in New York, and is engaged in the mining promotion business.—Damon has gone into the Chicago Telephone Company as an assistant construction engineer.—Bill Green has graduated, and is to assist the firm of J. G. White & Co. for the ensuing year.—Parsons also has his degree.—Lyon and Crane are to stay in the electrical department of the Institute.—Wentworth has left the Institute to engage in the development of ore separating machinery.—H. C. Mitchell has left J. G. White & Co., and is connected with Bell River Exploration Company in northern Quebec as a civil engineer.—Crosby writes in part:—

. . . The '05 fellows that are down here are Ammen, Blair, Guibord, Kenway, and Barrows whom I haven't met. Guibord has become a Benedick, and is also sporting a Vandyke beard. Blair has charge of the Washington office of Howson & Howson. The rest of us are in the Patent Office. Four of us accepted the hospitality of the Tech Club here awhile ago, and

Digitized by Google

after a pleasant dinner at the University Club we listened to a very interesting talk on firearms. Principal Examiner Rich is president of the club. Some of us have been contemplating getting the '05 fellows together once in a while for a card or theatre party, and, when we do, I expect a great burst of enthusiasm.

—Bill Motter has at last been heard from. His address is Mina San Diego, Santa Barbara, Chihuahua, Mexico. His letter was a good one when it did come. Parts of it run as follows:—

. . . I had a row with the old company, so quit them, leaving there on Easter Sunday. I then struck a job here with the Cia Metalurgical de Toureon, a Mexican concern, but these are their mines and run by foreigners. I started in as a mechanic in the mill. Later had the chance of choosing between day shift boss of the mill or going on trial as engineer (not a man who runs an engine). Besides making mine plans, I am now in charge of a lot of construction of tramways, as our system is quite extensive. At the other mine it was a great country! Seventy-five miles from a post-office, and one other white man in the place. All the riding you wanted; good deer and bear shooting within half a day's ride. Always wearing your gun loose in the holster, so that no Mexican could get the drop on you. It was wonderful how good and peaceable they were! [After Hepburn and I did a little fancy shooting.] We used to plunk at rabbits from the house, and often got them; got to be a pretty good shot, and in the standard of the Mexican we were pretty well up. And now let me tell you that this Mexican is a badly misunderstood individual in the States. He is a good workman, if you understand him, and, if you treat him right and square, will make a friend that will do a world of things for you. Taking it altogether, this is a mighty good country, and there is a lot doing for a man who will come down, learn the language, and intend to stay awhile. But get your job before you come, as it is hard to pick one up on the spur of the moment and without much experience.

I have before me a programme of Senior Week. The Glee Club Concert, etc., but I wish I could be with you Tuesday night. I am now homesick for a good, exciting "Pop" night. Tell all the boys to write to me. I have heard from very few.

I am more lonely here than I was out at the other mine, although sometimes I would not see a gringo for six weeks except Hepburn, and here there are a whole raft of them. When I used to ride into Parral from out there, it was like coming into an American city, you saw so many gringos on the street, and I used to want to yank off my hat and give them a "We are

Digitized by Google

happy" with Teddy Roosevelt and U. S. A. on the end, but they are as civilized and cold as in Boston.

I am now living alone in three rooms, and need a wife very badly. Do you know of one that is a good cook! If so, send her down. The Chinaman's grub is rank. At the other mine we lived on "frijoles y tortillos," and, I tell you, they are fine. I appreciate those corn and bean affairs now that I am eating imitation American grub spoiled by a Chink.

—The secretaries have had all sorts of things to do, but Bill has put on the finishing touches in asking us to send him a wife.—Another good letter comes from Ned Jewett:—

I am just now recuperating from an operation for appendicitis. I had to be so darn stylish, so they hustled me to an infirmary and whittled on me. Am now gaining weight and strength fast. While I was in the infirmary, Tede Green came down from Cincinnati to see me. Doc. Moorehead came down from the same place the week after. I expect to go up there this week and see them, also Duke Turner. I am still with the Southern Roofing and Concrete Company, and have charge of the concrete department.

I wish I was going to be with you at the "Pops." I will some day, though.

—We have been requested from various sources to advertise and find out whether or not Jim Lambie has finished his thesis. Jim, please answer.—In George Jones's return with his class assessment we found "Enclosed please find three days' salary. Treasure it carefully: I can't do it again."—The engagement has just been announced of W. K. Lewis to Miss Rosalind Kenway, a sister of H. W. Kenway, '05. "Doc" starts for Germany in August for two years' study in one of the universities.—Charles B. Magruder, Sp. '05, of Olney, Md., died in Cleveland, Ohio, March 9, 1904, of typhoid fever.—We have received from the class assessment so far $85. As we had about $50 against us in bills payable, this does not leave the treasury very well off. Every one stir up every one else, and give us money enough to work with. The secretary and vice-secretary's job is bad enough, but those combined with no money are the limit.—1905 has done well with the Income Fund. At present we have 186 subscriptions. Our nearest competitor, 1904, has 126. Of the total number of men on the mailing list, 36.3 per cent. subscribed. 1903 was our nearest competitor, with

Digitized by Google

35.6 per cent. We were twenty-second on the total amount subscribed. We pledged $4,800. Of course we could not expect to pledge as much as the older classes. The interest shown was what we wanted, and that we got. Lord was asked to act as chairman of the committee by the Technology Fund Committee, and he asked Bushnell and Wentworth to serve. Later this committee was found to be too small, so Messrs. Adams, Broad, Elliott, Bartlett, Perkins, Parsons, Lyon, Folsom, Tower, Long, and Lewis were added to the original committee. The chairman wishes to take this opportunity to thank the members of this committee for their efficient services, and also to thank the class for their loyalty and interest displayed.—The following letter has been received from Robert H. Richards, '68. Any one having any names to remit will please send them in immediately.

I am writing to you in behalf of the Nominating Committee of the Alumni Association, and especially in regard to the nomination of term members of the Institute of Technology Corporation.

The committee desire to hear from your class as to whether you have names you would like to suggest for term membership.

—The following are the changes of address reported the past three months. Other men whose change of address has not been noted in the REVIEW will confer a favor by notifying the secretary: A. F. Belding, Sullivan Machine Company, Joplin, Mo.; C. A. Butman, 43 Elm Street, West Lynn, Mass.; S. L. Cole, 13 Lincoln Street, Somerville, Mass.; J. C. Damon, 963 Washington Boulevard, Chicago, Ill.; A. C. Gilbert, 46 William Street, Cambridge, Mass. (with Merrimac Chemical Company); George Jason, Jr., New England Telephone & Telegraph Company, Cohasset, Mass.; M. B. Landers, 3121 Columbus Avenue, Philadelphia, Pa.; J. S. Loughlin, 197 De Kalb Avenue, Brooklyn, N.Y.; L. C. Pickersgill, 299 Broadway, New York, N.Y.; A. S. Prince, 108 West 4th Street, Cincinnati, Ohio; G. I. Rhodes, Interborough Railroad Company, 59th Street, New York, N.Y.; G. W. C. Whiting, Low Level Division of Sewerage Committee, Ingraham Building, Baltimore, Md.; C. N. Rogers, Box 66, Phœnixville, Pa.; H. A. Wentworth, 60 India

Digitized by Google

Street, Boston, Mass.; W. S. Richmond, surveyor for U. S. L. S., 33 Campan Building, Detroit, Mich.; W. O. Tuck, chemist for Sherwin-Williams Paint Company, Hotel Florence, Pullman, Ill.; C. Robert Adams, United States Geological Survey, Attean Camps, Jackman, Me.; Converse Smith, with the Pennsylvania Railroad Company, Cresson, Pa.; Jules V. Barnd, in mining promotion business, 50 Broadway, New York, N.Y.; W. C. Gilman, 144 Nahant Street, Lynn, Mass.; R. K. Forsyth, 2908 West Avenue, Newport News, Va.; E. H. Bartlett, Passaic, N.J.; I. A. Murr, 7 Broadway, Albany, N.Y.

1906.

THOMAS L. HINCKLEY, *Sec.*, 745 Osceola Ave., St. Paul, Minn.

A. T. HEYWOOD, *Resident Sec.*, Mass. Inst. of Tech., Boston.

The class of 1906 sends into the world 273 men and 4 women, thus amply fulfilling the prediction made in the last issue of this magazine, that there would be at least 250 graduates. We have overheard several alumni remarking that, "when they went to Tech, the faculty didn't pass 'em all, as they do now," and we wish to assure these men that the faculty has not been any more lenient with 1906 than with them. Of the original 481 composing the class of 1906 in its Freshman year, only 167 graduated last June, the difference being made up by men from other schools and other classes at the Institute. One thing, however, seems clear. The "weeding-out" process has in our case been done perhaps more effectually during the first three years, leaving fewer men to be disappointed at the end,—a course which is certainly wiser both for the Faculty and for the unfortunate students.—It is too early to give any information as to the distribution of 1906 men. Of the graduates of Course I., many have gone into railroad work in the West, and two at least are bound for South America. The mechanical engineering graduates seem to have found satisfactory employment largely in the East. Quite a number of Course III. men will go to Mexico. Course VIII. seems to have developed a strong affection for the Institute. The

Digitized by Google

chemists evidently prefer the East. Very few of the graduates in Course XIII. had decided on their work, but opportunities in the vicinity of the Great Lakes were the most promising. More definite news of the graduates will be forthcoming later.—Aided by perfect weather, the various events of "Senior Week" went off to the entire satisfaction of the Class Day Committee, and, it is hoped, of the guests of the class as well. It was the first time that the Class Day Committee had attempted to take charge of all the undergraduate festivities, and the plan seemed to be successful. Over 250 men turned out for the class banquet at the American House, the first of the Commencement celebrations, and the spirit with which the men supported the dinner was kept up throughout the week. Accounts of the various events appear elsewhere. Perhaps the greatest surprise was occasioned by the alumni reception, which proved anything but a tame affair. We don't know how our sedate alumni liked the potato race and pie-eating contest, but their little stunts were very acceptable to us. The grand finale of the season, the Pop Concert, being almost an entirely alumni affair, reflects glory upon all alike. However, we would like to see 1907 beat our record for attendance and enthusiasm. Finally, the class of 1906 finds itself well pleased to join that Greater Technology which exists throughout the world in the hearts of all loyal Technology men. We hope to have our share in its future successes, and to do what we can to enhance them. Most of us feel that, while graduation is a great thing, it merely opens the way to greater things, and that not the least of these is loyalty to the Institute. It is surely the wish of all of us that "she may live long and prosper."—The engagement of Mr. Hermann C. Henrici to Miss Lois Ashbrook Oldham was announced on June 24, 1906. Hooray for Hermann! First marshal and first engaged of our new-born alumni, he has set a pace which others of us must hustle to beat. We are sure that the whole class of 1906 joins with us in heartiest congratulations to the happy principals in this affair, and in oceans of best wishes for the future.—Angelo T. Heywood has been elected resident secretary, class of 1906. Communications may be addressed to him or to T. C. Hinckley.

Digitized by Google

BOOK REVIEW.

MECHANICAL DRAWING FOR TECHNICAL STUDENTS

By Charles L. Adams. Boston: Geo. H. Ellis Co., 1905.

Mechanical drawing is but a means to an end, that end being the completed piece or machine. The draughtsman is but a recorder of ideas which the drawing, unaided, conveys to the artisan. Success, therefore, rests upon attention to many details.

The author has wisely chosen to deal only with the technique and working methods of mechanical drawing, leaving to a course in descriptive geometry the treatment of the independent principles of the subject. The result is a veritable guide-book, which directs the beginner, step by step, leads him past the pitfalls and reveals every short cut. The minuteness of the instructions conserves time in the attainment of knowledge and skill. Although primarily designed for class instruction, this work is of marked value to the individual who must do without a teacher.

It is manifestly a book written out of the author's extended experience, one in which each individual statement bears evidence of most careful consideration, where every word counts and every illustration proves its necessity. The eight by ten inch pages, 204 in number, are of ample size for clearly presenting these illustrations, which include 160 figures and 23 full-page plates. All are admirably reproduced.

In the text are given instructions regarding the selection, use and care of drawing instruments and materials, methods of rendering and lettering, drawing from the object and making wash, working and isometric drawings. One chapter is devoted to problems in geometrical construction, and the closing pages to methods of mechanical copying, including blue printing and reproduction by line and half-tone processes. A very complete index adds materially to the utility of the book.

W. B. Snow, '82.

Digitized by Google

ALPHABETICAL LIST OF ADVERTISERS

	PAGE
American School of Correspondence	11
Atlantic Works, The	1
Barrus, George H.	2
Buffalo Testing Laboratory	2
Cabot, Samuel	2
Chicago and Alton Railway	13
Chase, Harvey & Company	3
Child, Stephen	3
Davis Foundry Company	4
Dean & Main	3
Draper Company	Cover
Ellis, Geo. H. Co.	16
Gowing, E. H.	3
Harrison Safety Boiler Works	Cover
Hub Engraving Co.	13
Knapp, F. B.	3
Little, Arthur D.	2
Mason Regulator Co., The	13
Massachusetts Institute of Technology	Cover
Merrimac Chemical Co.	4
Metcalf, Leonard	3
Morse Twist Drill and Machine Co.	13
Richards, Ellen H.	3
Richards, Robert H.	3
Ricker, George A.	2
Samson Cordage Works	1
Simplex Electrical Co.	6
Smith, S. Morgan, Company	1
Star Brass Manufacturing Company	16
Stone & Webster	4
Sturtevant, B. F., Company	6
Taintor, Giles	3
Tech, The	15
"Technique, 1907"	15
Technology Review, The	10
Todd, Thomas	16
Turner, E. K.	3
Walworth Manufacturing Company	5

Digitized by Google

The Technology Review

A QUARTERLY MAGAZINE
DEVOTED TO THE
INTERESTS OF THE
MASSACHUSETTS INSTITUTE
OF TECHNOLOGY

AND

PUBLISHED BY THE ASSOCIATION OF CLASS SECRETARIES

83 NEWBURY STREET, BOSTON

The Review aims to develop closer relations among Institute men and to stimulate their interest in the work of the College.

It is in no sense an engineering magazine, but deals broadly with the problems of Technological Education and the responsibilities of the professional man.

THE REVIEW is published during January, April, July, and October. Communications should be addressed to THE TECHNOLOGY REVIEW, 83 Newbury Street, Boston, Mass.

SUBSCRIPTION, ONE DOLLAR A YEAR
SINGLE COPIES, THIRTY-FIVE CENTS

Volumes I., III., IV., and V., finely bound in half morocco, are ready for delivery at $2.00 each, or will be exchanged for unbound sets, provided they are in good condition, at $1.00 each. (If sent by mail, 30 cents extra.) Volumes VI. and VII. at $2.25 each, or they will be exchanged for unbound sets at $1.25 each.

Digitized by Google

Technical Instruction by Mail

The American School of Correspondence, Chicago, formerly of Boston, offers instruction by correspondence in Electrical, Mechanical, Stationary, Marine, Locomotive, Civil, Railroad, Structural, Municipal, and Hydraulic

ENGINEERING

Architecture, Structural Drafting, Mechanical Drawing, Perspective Drawing, Telephony, Telegraphy, Navigation, Heat, Ventilation, Plumbing, Sheet Metal Pattern Drafting, and Textile Manufacturing, including Cotton, Wool and Worsted, Knitting, Finishing, Chemistry and Dyeing; also

COLLEGE PREPARATORY COURSES

(fitting for entrance to Engineering Technical Schools)

The instruction offers those who have not the means or time to attend a resident school an opportunity for self-improvement under the guidance of thoroughly competent teachers. The instruction papers have been prepared especially for home study by men of high professional standing. Among these are

Prof. Louis Derr, Massachusetts Institute of Technology
Prof. F. B. Crocker, Columbia University
Prof. L. S. Marks, Harvard University
Prof. W. H. Lawrence, Massachusetts Institute of Technology
Prof. F. E. Turneaure, University of Wisconsin
Prof. W. S. Leland, Massachusetts Institute of Technology
Prof. Wm. Esty, Lehigh University
Prof. H. W. Gardner, Massachusetts Institute of Technology
Prof. W. L. Webb, formerly University of Pennsylvania
Prof. C. L. Griffin, formerly Pennsylvania State College
Prof. A. Marston, Iowa State College
Prof. A. E. Phillips, Armour Institute of Technology
Prof. H. E. Everett, University of Pennsylvania
D. A. Gregg, Boston

For further information and catalogue address

AMERICAN SCHOOL OF CORRESPONDENCE

CHICAGO, ILL. A. E. ZAPF (M. I. T. '95), Sec'y

Digitized by Google

Some Comments on the Review

[From the Boston *Herald*, Sunday, February 14, 1904.]

No other college periodical that comes to our table has the freshness, readableness, and fine flavor of earnestness of the *Technology Review*. Primarily, of course, the *Review* is an arena for exploitation of the ideal of the Institute of Technology, dissemination of information about it and the cultivation of loyalty; but this purpose is pursued so broadly and generously that the publication has become not only interesting, but important, to the educational world generally, and especially to all who are concerned with the development of that motive and mode of education which the Institute exists to exemplify. The value of its contents is high, and the tone throughout is lofty and generous.

BOSTON, MASS.

. . . "I consider the REVIEW one of the very best things of its kind and most useful to the Institute."

Professor ———.

DENVER, COL.

"The TECHNOLOGY REVIEW is all right. Count on me as a subscriber for life. Every man at the M.I.T. should have it."

———, '87.

SAN JUAN, P.R.

. . . "I find it very interesting, and the only way I can keep track of what is doing in and for the Institute."

———, '89.

HACKENSACK, N.J.

"THE REVIEW is A1, and I congratulate the Committee on their success. I will try to get my share of new subscribers."

———, '91.

So. BETHLEHEM, PA.

"I hardly know what I should do without it. The REVIEW deserves the best possible financial support, just as it does the personal and collective thanks of all our alumni."

———, '93.

WILKINSBURG, PA.

. . . "I should be sorry to miss a single number of the REVIEW."

———, '98.

NEW YORK, N.Y.

"No Tech man should consider a year well spent unless he has paid his next year's subscription to the REVIEW."

———, '98.

PORTLAND, OR.

. . . "THE TECHNOLOGY REVIEW is a credit to Tech and to the Association of Class Secretaries, and every alumnus should take it."

———, '04.

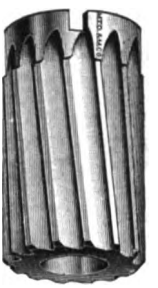
Digitized by Google

Morse Twist Drill and Machine Co.

NEW BEDFORD, MASS., U.S.A.

Makers of

INCREASE AND CONSTANT ANGLE
TWIST DRILLS, REAMERS, CHUCKS,
MILLING CUTTERS, TAPS, DIES,
MACHINERY AND MACHINISTS' TOOLS



THE MASON REGULATOR CO.

INCORPORATED 1883

STANDARD STEAM SPECIALTIES

Reducing Valves, Damper Regulators, Pump Governors,
and Automatic Appliances of all descriptions for the regulation and control of Steam, Water, and Air Pressures.

158 SUMMER STREET, COR. FEDERAL STREET, BOSTON, MASSACHUSETTS
WORKS AT DORCHESTER LOWER MILLS, MASS.

CHICAGO & ALTON RAILWAY

"COMING AND GOING"
"THE ONLY WAY"
BETWEEN
CHICAGO
ST. LOUIS
KANSAS CITY
AND PEORIA

GEO. J. CHARLTON, Gen. Pass. Agent, Chicago, Ill

Hub
Engraving
Company

Photo-Gravings
Half-Tones
Relief Plates

173
Summer St.,
BOSTON

Digitized by Google

The Technology Review

Contents of Volume VI.

Volume VI. January, 1904 Number 1

FRONTISPIECE: Laboratory of Dynamo electric Machinery, looking South.

THE AUGUSTUS LOWELL LABORATORIES OF ELECTRICAL ENGINEERING HARRY E. CLIFFORD, '86

THE COURSE IN GENERAL STUDIES ARTHUR A. NOYES, '86

THE JUNE ALUMNI REUNION HENRY S. PRITCHETT

THE OBSERVANCE OF COMMENCEMENT BY THE ALUMNI FREDERICK H. FAY, '93

THE TREASURY DEPARTMENT JULIAN E. WOODWELL, '96

LOWELL INSTITUTE SCHOOL FOR INDUSTRIAL FOREMEN CHARLES F. PARK, '92

EDITORIALS:

THE INSTITUTE:
Corporation Notes.—Registration Notes.—Changes in Entrance Requirements.—Publications.—General A. P. Rockwell.—Conference of Teachers.—The British Education Commission.—General Notes.—Department Notes.—Society of Arts.

THE UNDERGRADUATES:
Class and Other Officers.—Convocations.—President Pritchett to the Freshmen.—The Honor System.—Athletics.—Dinners and Receptions.—Notes.

THE GRADUATES:
Annual Meeting of the M. I. T. A. A.—The Northwestern Association of the M. I. T.—The Technology Club of New York.—The Washington Society of the M. I. T.—Association of Class Secretaries of the M. I. T.—The Technology Club.—News from the Classes.

BOOK REVIEWS:
Williams's "High School Chemistry in its Relation to the Work of a College."—Boutelle's "Man of Mount Moriah."—Elson's "Woman's Work in Music."

Volume VI. July, 1904 Number 3

FRONTISPIECE: The Rogers Building.

THE FIRST TECH REUNION.

THE PROPOSED COMBINATION WITH HARVARD.

THE GORDON McKAY ENDOWMENT.

THE TECHNOLOGY FUND.

THE INSTITUTE:
Corporation Notes.—Faculty Notes.—Entrance Examinations.—Department Notes.—Society of Arts.

THE UNDERGRADUATES:
Junior Week.—Professional Societies.—Class Organizations and Clubs.—The Annual Meet.—The Dartmouth Meet.—Amherst Meet—Notes.

THE GRADUATES:
The Washington Society of the M. I. T.—The Technology Club of the Merrimack Valley.—The Tech Society of Philadelphia.—The Annapolis Society of the M. I. T.—The Connecticut Valley Association, M. I. T.—News from the Classes.

NECROLOGY: Julian Abbot Kebler, '78.

BOOK REVIEWS:
Dewey's "Employees and Wages."—Pearson's "Life of John A. Andrew, Governor of Massachusetts, 1861-1865."

Volume VI. April, 1904 Number 2

FRONTISPIECE: The Tennis and Racquet Club, Boston, Mass.

THE TENNIS AND RACQUET CLUB, BOSTON, MASS. FRANCIS W. CHANDLER

A LABORATORY COURSE IN INDUSTRIAL CHEMISTRY WILLIAM H. WALKER

THE JUNE REUNION H. W. TYLER, '84

THE PROPOSED HARVARD-TECHNOLOGY MERGER.

THE COURSE IN GENERAL STUDIES.

THE INSTITUTE:
The Corporation.—General Alfred P. Rockwell.—Summer Courses.—Summer School of Mining.—Exhibit at St. Louis.—Notable Meetings.—Reception to Mrs. William Barton Rogers.—General Notes.—Department Notes.

THE UNDERGRADUATES:
The Tech Show.—Professional Societies.—Class Organizations and Clubs.—Y. M. C. A. Meeting.—The Honor System.—Senior Election.—The Tech Hop.—Freshman Battalion Review.—The Library.—Athletics.

THE GRADUATES:
The North-western Association of the M. I. T.—The Technology Club of New York.—Washington Society of the M. I. T.—The Technology Club of Cincinnati.—The Technology Club of the Merrimack Valley.—Technology Men of Montana.—The Association of the Women of the M. I. T.—Association of Class Secretaries of the M. I. T.—The Technology Club.—Communication.—News from the Classes.

BOOK REVIEWS:
Richard's "Ore Dressing."—Munroe's "Adventures of an Army Nurse."

Volume VI. October, 1904 Number 4

FRONTISPIECE: Bust of William Barton Rogers by T. H. Bartlett.

WILLIAM BARTON ROGERS JAMES P. MUNROE

ADDRESS AT THE CASE SCHOOL OF APPLIED SCIENCE JOHN R. FREEMAN

FREDERIC FIELD BULLARD (The Man) GELETT BURGESS

FREDERIC FIELD BULLARD (The Musician) LEO R. LEWIS

THE TECHNOLOGY FUND.

THE BUREAU OF STANDARDS ALBERT S. MERRILL

THE INSTITUTE:
Corporation Notes.—The New Year.—Faculty Notes.—Summer Courses.—Department Notes.

THE GRADUATES:
Alumni Association of the M. I. T.—Reunion Expenses.—Reunion Stunt Prize.—Washington Society of the M. I. T.—The Tech Society of Philadelphia.—News from the Classes.

NECROLOGY: Jerome Sondericker.—Kilburn Smith Sweet.

BOOK REVIEWS:
"The Institute."—"The Tech."—"Technique," 1905.

Digitized by Google

THE TECH

PUBLISHED EVERY MONDAY, WEDNESDAY, AND FRIDAY DURING THE COLLEGE YEAR BY STUDENTS OF THE MASSACHUSETTS INSTITUTE OF TECHNOLOGY

Alumni desiring to keep in touch with their Alma Mater should read *The Tech*

Gives all the Technology news, covering not only undergraduate activities, but all matters connected in any way with the Institute, such as alumni news, the question of future location, etc. Alumni are especially requested to inform *The Tech* of their movements.

---

86 ISSUES, $1.50 PER YEAR

CHARLES T. BARTLETT, '06
Editor-in-chief

JOHN C. BROOKS, '08
Business Manager

To the Alumni:

TECHNIQUE, 1907

Will be out April Twenty-sixth

This volume will be of especial interest to the Alumni, containing, as it does, an autobiography of Professor Robert H. Richards, to whom the book is dedicated.

Copies { $2.00 collect
2.40 prepaid

ALBERT H. DONNEWALD,
Editor-in-chief

GEORGE A. GRIFFIN,
Business Manager

Digitized by Google

Star Brass Manufacturing Co.

MANUFACTURERS OF

The Star Improved Steam Engine Indicator

with inside or outside springs

Also Extra Heavy Pop Safety Valves, with Solid Nickel Seats, for the highest pressures

EXTRA HEAVY RENEWABLE SEAT GLOBE, ANGLE, CROSS, CHECK, and BLOW-OFF VALVES

Also Original and Exclusive Makers of "Non-Corrosive" Steam Gauges

MAIN OFFICE AND WORKS, 108–114 East Dedham Street, Boston, Mass.

BRANCH OFFICES

38 Cortlandt Street, NEW YORK — 28 New Bridge Street, LONDON, ENGLAND

---

14 BEACON STREET — BOSTON, MASS.

THOMAS TODD, PRINTER

TELEPHONE 601 HAYMARKET

GEO. H. ELLIS CO., *Printers*

NO. 272 CONGRESS STREET, BOSTON, MASSACHUSETTS

ILLUSTRATING, PRINTING, AND BINDING OF MAGAZINES, BOOKS, CATALOGUES, PAMPHLETS, ALSO JOB PRINTING, LAW, RAILROAD, AND MERCANTILE WORK

Telephone, 1549 Main

Digitized by Google

We sell

COTTON MACHINERY IMPROVEMENTS

For Spinning
Spooling
Warping
Twisting
Chain-dyeing
and Weaving

DRAPER COMPANY

Hopedale, Mass.

WILLIAM F. DRAPER, *President*
GEORGE A. DRAPER, *Treasurer*, M. I. T., '76
EBEN S. DRAPER, *Agent*, M. I. T., '78
GEORGE OTIS DRAPER, *Secretary*, M. I. T., '87

Digitized by Google

Cochrane Oil Separators

Cochrane Oil Separators are beyond question the most successful and satisfactory devices that have as yet been designed for the purpose of removing cylinder oil from exhaust steam.

More than 4,000,000 H.P. of boilers are being protected from oil by these Cochrane Separators, of which there are over 10,000 in present use. Many of these Separators have been in continuous service (without cleaning—for they are self-cleaning) for more than ten years. That they are efficient is proven by the fact that no oil has ever been found in these boilers.

Hundreds of these Cochrane Oil Separators are used in dye-houses, ice-making plants, paper mills, etc., in which the exhaust steam, purified by the separators, is used in manufacturing processes where the slightest trace of oil would ruin the product.

Send for our Separator Catalogue 53—S.

HARRISON SAFETY BOILER WORKS

3192 N. 17th STREET **PHILADELPHIA, PA.**

Manufactories of the celebrated Cochrane Heaters and the Serge-Cochrane System for water purification.

Digitized by Google

ol. VIII. October, 1906 No. 4.

THE TECHNOLOGY REVIEW

A QVARTERLY MAGAZINE RELATING TO THE MASSACHVSETTS INSTITVTE OF TECHNOLOGY

PVBLISHED AT
83 NEWBVRY STREET BOSTON BY THE
ASSOCIATION OF CLASS SECRETARIES

Copyright, 1906, by Association of Class Secretaries, M. I. T.
Digitized by Google

THE

MASSACHUSETTS

INSTITUTE OF TECHNOLOGY

BOSTON, MASS.

THE MASSACHUSETTS INSTITUTE OF TECHNOLOGY aims to give thorough instruction in *Civil*, *Mechanical*, *Chemical*, *Mining*, *Electrical*, and *Sanitary Engineering*; in *Chemistry*, *Architecture*, *Physics*, *Biology*, *Geology*, and *Naval Architecture*. The Graduate School of Engineering Research offers courses leading to the degree of Doctor of Engineering.

To be admitted to the Institute, the applicant must have attained the age of seventeen years, and must pass examinations in algebra, plane and solid geometry, physics, history of the United States (or ancient history), English, French, and German. Preparation in some one of a series of elective subjects is also required. A division of these examinations between different examination periods is allowed. In general, a faithful student who has passed creditably through a good high school, having two years' study of French and German, should be able to pass the Institute examinations.

Graduates of colleges, and in general all applicants presenting certificates representing work done at other colleges, are excused from the usual entrance examinations and from any subjects already satisfactorily completed. Records of the College Entrance Examination Board, which holds examinations at many points throughout the country and in Europe, are also accepted for admission to the Institute.

Instruction is given by means of lectures and recitations, in connection with appropriate work in the laboratory, drawing-room, or field. To this end extensive laboratories of chemistry, physics, biology, mining, mechanical engineering, applied mechanics, and the mechanic arts, have been thoroughly equipped, and unusual opportunities for field-work and for the examination of existing structures and industries have been secured. So far as is practicable, instruction is given personally to small sections rather than by lectures to large bodies of students.

The regular courses are of four years' duration, and lead to the degree of Bachelor of Science. In most courses the work may also be distributed over five years by students who prefer to do so. Special students are admitted to work for which they are qualified; and advanced degrees are given for resident study subsequent to graduation.

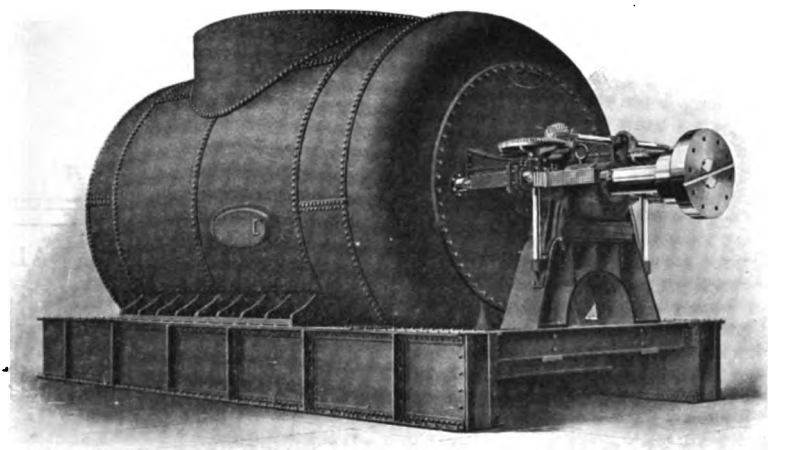
The tuition fee, not including breakage in the laboratories, is $250 a year. In addition, $30 to $35 per year is required for books and drawing materials.

For catalogues and information, address

H. W. TYLER, *Secretary*,
491 Boylston Street, Boston.

Digitized by Google

TURBINE WATER WHEELS



Pair 5,000 h.p. Cylinder Gate Wheels, 80 feet head. 35,000 h.p. of these wheels are operating generators in the Spier Falls plant of the Hudson River Water Power Company, Glens Falls, N.Y.

We make a specialty of designing wheels to suit all conditions

S. MORGAN SMITH COMPANY,

BOSTON OFFICE 176 Federal Street — **YORK, PENNSYLVANIA**

THE ATLANTIC WORKS

INCORPORATED 1853

BORDER, MAVERICK, AND NEW STREETS, EAST BOSTON

BUILDERS OF

Stationary... **BOILERS** and Marine

Plate and Sheet Iron Work of Every Description

STEAMSHIPS, TOW BOATS, STEAM YACHTS AND HEAVY MACHINERY

SAMSON SPOT SASH CORD

IS GUARANTEED FREE FROM IMPERFECTIONS OF BRAID OR FINISH.

ALSO SOLID BRAIDED CORDS OF ALL SIZES AND COLORS.

SAMSON CORDAGE WORKS .·. *BOSTON, MASS.*

JAMES P. TOLMAN, '68, President. HERBERT G. PRATT, '85, Treasurer.

Digitized by Google

A. D. LITTLE, '85

H. J. Skinner, '99
H. S. Mork, '99
F. A. Olmsted, '03
C. F. Sammet, '03
T. C. Pinkerton, '05

Arthur D. Little

Chemical Expert and Engineer

93 Broad Street
BOSTON

CHEMICAL CONTROL OF MATERIAL AND PROCESSES

George A. Ricker, '86
Pres. and Gen. Mgr.

N. W. Shed, '81
Chemist and Metallurgist

BUFFALO
TESTING LABORATORY

Inspecting Engineers
Chemists and Metallurgists

Office
702 Ellicott Square Buffalo, N.Y.

GEORGE A. RICKER, '86

M. Am. Soc. C. E.
Consulting Engineer
Ellicott Square
Buffalo, N.Y.

SAMUEL CABOT

Manufacturing Chemist

Creosote Shingle Stains, Sheathing and Deafening
"Quilt," Lampblack, Brick Preservative,
Conservo Wood Preservative, Etc.

141 Milk Street Boston, Mass.

GEO. H. BARRUS, '74

Expert and
Consulting Steam Engineer

Pemberton Building
12 Pemberton Square
Boston

Digitized by Google

STEPHEN CHILD, '88

LANDSCAPE ARCHITECT
AND
CONSULTING ENGINEER

Ford Bldg., 15 Ashburton Pl., Boston, Mass.

Member Am. Soc. Civ. Engrs. Telephone

E. H. GOWING, '77

ENGINEER

12–22 Pemberton Square, Boston, Mass.

HARVEY CHASE & COMPANY

PUBLIC ACCOUNTANTS AND AUDITORS

RECENT EXAMINATIONS:
City of Boston, City of Chicago, State of Ohio, City of Minneapolis, Boston Gas Companies, Manufacturing Companies, Savings Banks, Trust Companies, etc.

27 State Street, Boston
Telephone, 3660 Main

GILES TAINTOR

COUNSELLOR AT LAW

53 STATE STREET

BOSTON

E. K. TURNER, '70

CIVIL ENGINEER

53 State Street, Boston, Mass.

ELLEN H. RICHARDS, '73

SANITARY ANALYSES OF WATER SUPPLIES

Consulting Chemist on Food and Dietaries

Massachusetts Institute of Technology

BOSTON

F. B. KNAPP, S.B., '79

PRINCIPAL OF

POWDER POINT SCHOOL, DUXBURY, MASS.

Prepares for Massachusetts Institute of Technology, College, or Business

---

F. W. DEAN CHARLES T. MAIN, '76

DEAN & MAIN

MILL ENGINEERS AND ARCHITECTS

Exchange Building 53 State Street
Boston, Mass.

LEONARD METCALF, '92

M. AM. SOC. C. E.

14 Beacon Street, Boston, Mass.

Telephone, HAYMARKET 1982–3

Water Supply, Sewerage, and Other Engineering Works

ROBERT H. RICHARDS, '68

PROFESSOR OF MINING ENGINEERING
AND METALLURGY

Massachusetts Institute of Technology, Boston, Mass.

Consulting Engineer on Ore Dressing

Digitized by Google

STONE & WEBSTER

84 STATE STREET, BOSTON

GENERAL MANAGERS OF

The Lowell Electric Light Corporation.
The Seattle Electric Company.
Puget Sound Electric Railway.
Columbus Electric Company.
Cape Breton Electric Company, Ltd.
El Paso Electric Company.
Jacksonville Electric Company.
Ponce Electric Company.
Paducah Traction and Light Company.
Pensacola Electric Company.
The Blue Hill Street Railway Company.
Fort Hill Chemical Company.
Tampa Electric Company.
Terre Haute Traction & Light Company.
General Electro-Chemical Company.
Houston Electric Company.
Fall River Gas Works Company.
Galveston Electric Company.
The Key West Electric Company.

The Minneapolis General Electric Company.
Edison Electric Illuminating Co. of Brockton.
Houghton County Electric Light Company.
Brockton and Plymouth Street Railway Company.
The Houghton County Street Railway Company.
Whatcom County Railway and Light Company.
Savannah Electric Company.
Dallas Electric Corporation.
Northern Texas Electric Company.

CHARLES A. STONE, '88
EDWIN S. WEBSTER, '88
RUSSELL ROBB, '88

MERRIMAC CHEMICAL CO.

75 AND 77 BROAD STREET, : : BOSTON, MASS.

MANUFACTURERS OF

Oil Vitriol	Sulphate of Alumina	Bisulphite of Soda
Muriatic Acid	Chloride of Alumina	Hyposulphite of Soda
Nitric Acid	Hydrate of Aluminum	Tin Crystals, etc.
Acetic Acid	Acetate of Alumina	Aqua Ammonia
Acetate of Soda	Glauber's Salt	Wood Alcohol
Alum	Sulphate of Soda	Colors

S. W. WILDER, Treasurer — HENRY HOWARD, Vice-President

DAVIS-FOUNDRY COMPANY

LAWRENCE, MASS.

JAMES F. LANIGAN, Proprietor

Structural Iron Work of all descriptions

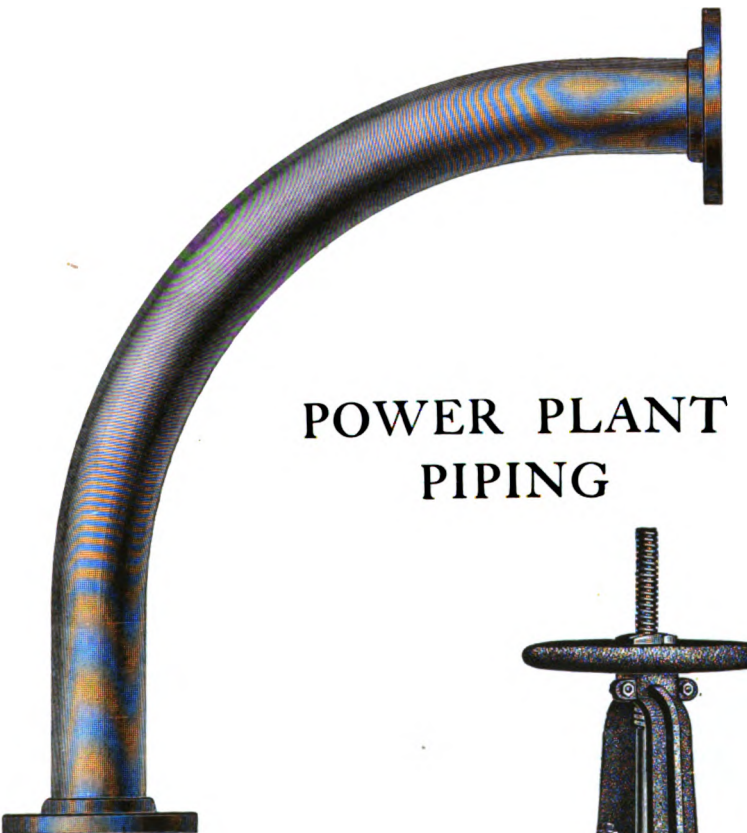
Machinery and Architectural Casting

JAMES F. LANIGAN, JR., '94, Agent

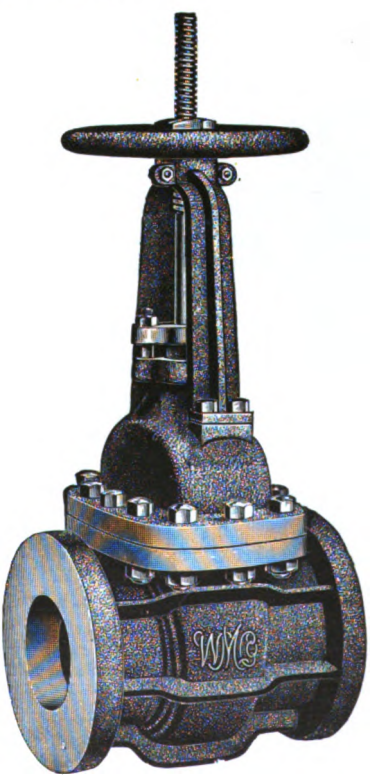
Digitized by Google

WALWORTH
MANUFACTURING COMPANY

BOSTON, U.S.A.



POWER PLANT PIPING



Extra Heavy
Valves and Fitting for
High Pressure Plants.

Walmanco.
Pipe Joints.

GENERAL OFFICES

132 Federal Street

Digitized by Google

LESS Than One Per Cent.

of the energy required to move a given amount of air in an ordinary ventilating flue will suffice in the case of a fan. The action of the fan is not affected by wind or weather, and its speed may be instantly changed to meet altered conditions. The entire subject of mechanical ventilation and heating by a forced circulation of warm air is discussed in our catalogue No. 112. Send for it.

B. F. STURTEVANT CO., Boston, Mass.

General Office and Works, Hyde Park, Mass.

NEW YORK **PHILADELPHIA** **CHICAGO** **LONDON**

Designers and Builders of Heating, Ventilating, Drying, and Mechanical Draft Apparatus; Fans, Blowers, and Exhausters; Steam Engines, Electric Motors, and Generating Sets; Fuel Economizers; Forges, Exhaust Heads, Steam Traps, etc. 500

SIMPLEX

RUBBER INSULATED

HIGH or LOW TENSION

WIRES & CABLES

AERIAL SUBMARINE

UNDERGROUND

EVERETT MORSS President CHAS. A. MORSS Treasurer

HENRY A. MORSS Vice Pres. J. H. MASON Gen. M'g'r.

THE SIMPLEX ELECTRICAL CO

110 STATE STREET BOSTON

Digitized by Google

The Technology Review

Volume VIII. October, 1906 Number 4

HARVARD COLLEGE LIBRARY
NOV 17 1906
CAMBRIDGE, MASS.

Contents

AN APPRENTICESHIP FOR BUSINESS RESPONSIBILITY
I. W. LITCHFIELD

THE STANDARDS TO BE PLACED BEFORE THE YOUNG ENGINEER . . . . . J. P. MUNROE

DUGALD C. JACKSON

THE CLASS OF '81 GATE

THE NEW GYMNASIUM . . . . . WINFIELD C. TOWNE

THE LOWELL INSTITUTE: ANNOUNCEMENTS

THE INSTITUTE:

The Presidency.—Corporation Notes.—Secretary of the Institute.—Registration.—Faculty Notes.—Vacation Notes.—Department Notes.

THE UNDERGRADUATES:

Opening of the College Year.—Athletics.—Notes.—Catholic Club.—Chess Club.—The 1906 Drinking Fountain.

THE GRADUATES:

M. I. T. Alumni Association.—North-western Association.—Rocky Mountain Technology Club.—Connecticut Valley Association of the M. I. T.—Technology Club of New York.—Technology Club of Rhode Island.—Technology Club of New Bedford.—News from the Classes.

Digitized by Google

ASSOCIATION OF CLASS SECRETARIES

OF THE

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

FREDERIC H. FAY, *Secretary* CHARLES F. READ, *Assistant Secretary*

Class Secretaries

ROBERT HALLOWELL RICHARDS, '68
HOWARD ADAMS CARSON . . '69
CHARLES ROBERT CROSS . . . '70
EDWARD WARREN ROLLINS . . '71
CALVIN FRANK ALLEN . . . '72
SAMUEL EVERETT TINKHAM . '73
CHARLES FRENCH READ . . . '74
EDWARD A. W. HAMMATT . . '75
JOHN RIPLEY FREEMAN . . . '76
RICHARD AUGUSTUS HALE . . '77
LINWOOD ORVILLE TOWNE . . '78
HARRY HUGHES CAMPBELL . . '79
GEORGE HUNT BARTON . . . '80
FRANK ELDEN CAME . . . . '81
WALTER BRADLEE SNOW . . '82
HARVEY STUART CHASE . . . '83
WILLIAM LEWIS PUFFER. . . '84
ISAAC WHITE LITCHFIELD . . '85
ARTHUR GRAHAM ROBBINS . . '86
EDWARD GALBRAITH THOMAS, '87
WILLIAM GAGE SNOW . . . '88
WILLIAM ELTON MOTT . . . '89
GEORGE L. GILMORE . . . . '90
HOWARD CARLETON FORBES . '91
WILLIAM ATKINSON JOHNSTON, '92
FREDERIC HAROLD FAY . . . '93
SAMUEL CATE PRESCOTT . . . '94
HAROLD KILBRITH BARROWS . '95
EDWARD STACEY MANSFIELD . '96
JOHN ARTHUR COLLINS, JR. . '97
CHAS.-EDWARD AMORY WINSLOW, '98
HERVEY JUDSON SKINNER . . '99
RICHARD WASTCOAT . . . . '00
RALPH HAMILTON STEARNS . . '01
FREDERICK HUSTON HUNTER . '02
WALTER HOLBROOK ADAMS . '03
CURRIER LANG . . . . . '04
ROBERT H. W. LORD . . . '05
THOMAS LESLEY HINCKLEY . '06
KARL WILLIS RICHARDS . . '07
HARRY WEBB, ... '08
WALTER WELLINGTON KING . '09

MAXWELL ALANSON COE, President, Institute Committee

HARRY WALTER TYLER . . . '84
Secretary of the Faculty

EVERETT MORSS . . . . . '85
President of the Alumni Association

ARTHUR GRAHAM ROBBINS . . '86
Secretary of the Alumni Association

GUY LOWELL . . . . . '94
President of the Technology Club

LEONARD THEAKER BUSHNELL '05
Secretary, The Technology Club

JOHN T. CHENEY . . . . . '03
Secretary, North-western Association M.I.T.

HAROLD O. BOSWORTH . . . '02
Secretary, Rocky Mountain Technology Club

HENRY SOUTHER . . . . . '87
President, Technology Club of the Connecticut Valley

ALLSTON SARGENT . . . . '98
Secretary, Technology Club of New York

PAUL WEEKS . . . . . '02
Secretary, Technology Club of Philadelphia

RAYMOND H. DANFORTH . . '98
Secretary, Pittsburg Technology Association

HENRY A. BOYD . . . . . '79
Secretary, Technology Club of Buffalo

FREDERICK W. SWANTON . . '90
Secretary, Washington Society of the M.I.T.

RICHARD W. PROCTOR . . . '94
Secretary, The Cincinnati M.I.T. Club

JOHN A. COLLINS, JR. . . . '97
Secretary, The Technology Club of the Merrimack Valley

CHARLES H. STRATTON . . . '00
Secretary, Annapolis Society of M.I.T.

JOHN O. AMES . . . . . '93
Secretary, The Technology Club of R. I.

CHARLES F. WING, JR. . . . '99
Secretary, The Technology Club of New Bedford

GEORGE W. BAKER . . . . '92
Sec., Technology Club of Hartford, Conn.

REDFIELD PROCTOR, JR. . . . '02
Secretary, Vermont Technology Association

JACOB STONE, JR. . . . . '99
Secretary, The Technology Club of Minnesota

SIDNEY YOUNG BALL . . . . '03
Sec., The Technology Club of Northern Ohio

Committee on Publication

JAMES PHINNEY MUNROE, '82
WALTER BRADLEE SNOW, '82
ARTHUR AMOS NOYES, '86
EDWARD GALBRAITH THOMAS, '87
WALTER HUMPHREYS, '97

Digitized by Google

The Technology Review

Vol. VIII. OCTOBER, 1906 No. 4.

AN APPRENTICESHIP FOR BUSINESS RESPONSIBILITY

From infancy up to the time when the young man leaves his books and teachers to go out into the world his mental development is accomplished by gradual steps which are carefully gauged with reference to his possibilities for assimilation and his growing experience.

The kindergarten prepares him for his first competitive relations with his fellows, and gives him a knowledge of elementary principles which would otherwise be acquired only through tribulation; but, when he has passed a decade with no real responsibility, and has been measuring himself with children, school-boys, and college mates, judging himself by their standards and gauging the realities of life by their ideals, he is unceremoniously set afloat on the turbulent waters, with compass and charts it is true, but with no practical idea of how to allow for leeway or tidal currents. And so we see the boats diverge, some to strike the rocks, some to circle about aimlessly, never to reach port, and some few borne by favoring elements to the haven of their desire.

It is apparently assumed that an Institute student, with his equipment for practical work, is better fitted for this crisis than his college brother. Is he not an engineer? Has he not had the benefits of strenuous study and labo-

Digitized by Google

ratory work? Is he not used to drudgery and obedience to orders? All that is true, and in it lies the greater danger, for he is inclined to accept the drudgery as his whole duty; and, following his analytical training, he looks down and into rather than up and out. The fog is about him, his eye is on chart and compass, and he is oblivious to the echo from a threatening cliff directly in his course, simply because he is too absorbed in theory to use one of his common senses.

The plea I have to make is for a collateral preparation for practical things during student life as a part of the curriculum, which shall supplement the work in the classroom and laboratory and serve to adjust and balance, by enough practical responsibility to germinate the young man's judgment. I am persuaded that nothing can accomplish this except actual experience, but I am also persuaded that this actual experience can be had at the Institute of Technology with little loss of any valuable thing, and with an immense gain in the preparedness of the graduate to grasp the problems before him.

The idea of committee work in most of our larger and in many of our small industrial institutions is spreading rapidly because it has accomplished remarkable results when properly carried out. At the Institute the *Tech*, *Technique*, the Athletic Association, etc., are conducted by student committees, and are probably much better handled than if the Institute were responsible for them. These are called student activities; but is there any reason why student committees cannot be made useful, under competent direction, in conducting some of the material affairs of an educational institution, where the benefits would not only redound to the individual students, but also to the institution itself?

The men who become identified with these student ac-

Digitized by Google

tivities gain something of the experience I have referred to, because they are dealing with real business problems, and they get some idea of the value of organization as well as some experience in management, of the greatest importance to them in after-life. On the other hand, their view is confined to one particular direction, that in which they are immediately occupied, and these extra duties, which usually come in the Junior or Senior years, are almost too great to be undertaken in connection with their regular work.

What I would like to see accomplished is a consistent scheme of committee work which shall have a place on the tabular view, and which shall bring as large a number of men as possible within its influence, giving the students definite responsibility by placing the administration of the Institute's material affairs in the hands of a student democracy, the real control to be tactfully exercised by a resident engineer, who would thus be the head of one of the Institute's most important departments. The scheme I have to suggest may appear complex and somewhat revolutionary. When analyzed, however, it is nothing more than a division of details among committees, devoting a very small amount of time to a feature of education which will result in wonderfully broadening the men who come within its range and in giving every man in the student body a general idea of the value of business organization.

As I have indicated, the whole matter is to be in charge of a carefully selected resident engineer, in whom all responsibility and authority will be vested; the student body to be organized on the general plan of a large industrial corporation, with a Board of Directors chosen from the Junior and Senior Classes, and including the resident engineer. Under this executive body the administrative department will be headed by a general manager, either a Junior or a

Digitized by Google

Senior, manager of buildings, manager of grounds, manager of athletics, manager of printing and publications, manager of student government, manager of operation and maintenance, etc. Under the manager of buildings will be manager of Building A, manager of Building B, etc., covering all the buildings within control of the Institute. There would also be sub-managers for each of the other departments, and an extension of the scheme to its limit would give the men some idea of general management, division of authority, relations of departments, theory of costs, inspection of material, and discipline. In fact, it would lead, more or less fully, into the various lines which are essential to the supplementary education of an engineer.

Although I have said that the real control would be vested in the head of the department, the resident engineer, I would have his guiding hand rest as lightly on the helm as possible. Inasmuch as all important matters would come before the Board of Directors of which he is a member, and as the deliberations are secret, it would be possible for him to direct diplomatically all action in that body as far as it was necessary for him to do so; but the student organization need not know how great or how little this influence is. The Board of Directors would stand for the centre of government, and the responsibilities of every unit in the organization would be real responsibilities. The less important positions would be given over to the Sophomores and perhaps some Freshmen. They would have a very limited amount of authority to do certain small things, and it would be obligatory upon them to see that these matters are attended to. Beyond a certain amount of expenditure or beyond a definite routine the manager of the department would be consulted. In cases more important the action of the General Manager would be necessary, and, where his au-

Digitized by Google

thority was not sufficient, the Board of Directors would take action. Every order, however, would go through the resident engineer's office, so that the actions of each individual member of this body would be under his observation and control.

To carry out the matter still further and give more interest to the men, I would have two political parties, say the cardinals and the grays, the divisions to be made between courses or in some other way by the Board of Directors; each party to have caucuses and make nominations, say two or three nominations for each office to be filled, the Board of Directors to choose from these nominees, one candidate on each side for each position. In this case a Faculty Committee in connection with the resident engineer would probably make the real selection. It is understood, however, that the party divisions would change at each election period, so that no permanent competition would be established between particular courses or classes of students.

The nominations being made, each party would have a mass meeting on different days. The men nominated for the higher positions would probably have served in minor offices by way of preparation. Their administration of these offices would be public, and the reasons for or against their election would be the subject of free and open discussion. It is reasonable to suppose that the men finally elected would be suitable representatives for the various positions.

If this plan is properly carried out, the division of work assigned to each student can be increased or diminished as he is able to take it on. There would not be the same burden that rests on the managing editor of the *Tech* or on other men now at the head of student activities. It would probably be well to include the Dean as a member of the Board of Directors, and before action is taken by the Board some

Digitized by Google

of the propositions should be taken before a Faculty Committee by the Dean and the resident engineer.

It would be necessary for the Board of Directors to meet regularly, say once or twice a week. The General Manager should meet with his cabinet once a week. The managers of different departments should meet with their submanagers once or twice a week. There would be a general meeting of the entire organization once a month, or perhaps oftener, and perhaps twice during the term there should be a general mass meeting, when the Board of Directors would make a report to its constituents.

The doings of the various officers would be chronicled in a daily bulletin, so that the work of the organization would be constantly before every student. This of itself would be something of an education.

The cost of running the institution would be a matter for first consideration. This would lead to the general study of costs, which is of vital importance and which does not appear to have sufficient consideration at the present time. Lectures on this subject by various experts in different lines would be welcomed and studied with enthusiasm. Prominent officials of large corporations would be glad to talk to appreciative students about the business in which they are interested. It would bring the men in direct touch with the active minds of the industrial world, and they would have an opportunity to study the latest developments in this broad field.

It seems obvious that such a plan would enlist the interest of the alumni, and many valuable suggestions and much assistance would come from that source.

It would be useless to attempt to carry out this work without the hearty enthusiasm of the students themselves. That this would be insured I have no doubt, because of the

Digitized by Google

nature of the competition and the variety of fields of attraction. It is also to be considered that the men who have shown skill and ability in the higher offices of this student democracy would be marked men, and after graduation they would be sought for by employers all over the country. This would create the highest incentive, and would be conducive to scholarship as well, because certain qualifications of scholarship would be essential in order to hold office. By this I do not mean that scholarship should be alone considered. Men should be chosen for their ability to administer affairs of the institution with success. Nevertheless, scholarship would be an important item, and I cannot see why the carrying out of this proposed plan would not be beneficial to scholarship.

Another feature of this plan would be the advertising which would naturally follow, because the experiment would be of public interest and would attempt to fill a lack which is universally recognized. It would enlist the interest of wealthy manufacturers and others who would be attracted by the plan, and who would not only willingly offer the benefit of their own experience, but would provide means for properly carrying it out. I further think that the carrying out of this plan would instil into the student body a sustaining enthusiasm that would spring from the very love of the work itself,—not the work of the student committees or any feature of it, but the work of the Institute itself as a grand, well-rounded whole.

I. W. LITCHFIELD, '85.

Digitized by Google

THE STANDARDS TO BE PLACED BEFORE THE YOUNG ENGINEER*

A major reason for the ineffectiveness of much of our public schooling is that teachers and pupils have their eyes and thoughts fixed, not upon the real purpose of education, but upon the examination of next week or the promotion of next June. The school and its processes become to them, therefore, ends in themselves. The petty lessons which they teach and learn obscure the broad objects of teaching and of learning, and the walls of the school-room limit their educational horizon. To neither such teachers nor such pupils is it ever revealed that schooling is but a minor means to the true end of education, which is, of course, physical, mental, moral, and therefore social, efficiency.

The students in a school of applied science have a wider view than this; but in most cases it is an outlook far too narrow. They are aiming, it is true, towards the goal of a professional career; but they usually see in that future profession, not an opportunity for social usefulness, not the happiness which is reached through efficiency, not the unselfish devotion of (for example) the "born" physician: they anticipate, on the contrary, merely the power, the money and the ultimate ease which professional success may bring. Therefore, few undergraduates study the subjects in the curriculum because they care for them or because they grasp the relation between those topics and the social organism. They pursue them simply because those subjects must be overleaped—like obstacles in a hurdle-race—

*Read at the annual meeting of the Association for the Promotion of Engineering Education at Ithaca, N.Y., July 3, 1906.

Digitized by Google

by the irksome process called examination, in order to secure a degree. The degree itself they look upon as an end worth working for, since its possession means, usually, a remunerative "job," which will lead to others, bringing in, eventually, an income adequate to the multitudinous expenditures of modern life.

Were this the attitude of mind of technological students alone, it might justify—or at least explain—the sometimes supercilious attitude of the college of "liberal arts," and might support its contention that its atmosphere is broadly cultural, while that of the college of science is narrowly utilitarian. Under modern conditions, however, the outlook of all collegians is practically the same; for, however fondly the older institutions may cling to outworn forms and terms, however prominently the "humanities" may stand out in their prospectuses, they also are, in truth, colleges of modern science and of the application of science to commercial and industrial life. The cloistered student wrapped in love of ancient learning is still to be found; but he is engulfed in the host of youth who, when they do not go to college simply for sociability and prestige, regard higher education as a kind of trump card in the game of money-making.

More or less unconsciously, colleges of arts and colleges of science alike foster this student attitude of mind by devoting an undue share of the academic year to examinations, by overloading the curriculum with examinable subjects, and by permitting the several schools or departments to emphasize the utilitarian by specializing and intensifying too much. As a result, the secondary purpose of a college—that of instilling information—too often bulks largest in the eyes of all concerned, and obscures or even eclipses the leading aims of all collegiate education.

Digitized by Google

Those major aims should be, in the order of their importance: (1) to develop manhood out of boyhood; (2) to make the men thus developed broad-gauged, mentally quick and receptive, intellectually catholic, tolerant and modest; (3) to train good citizens, in the fullest meaning of that term; and (4) to equip for industrial and professional efficiency. To accomplish the last is what the technological school is paid especially to do; but, unless that professional training is given in such a way as to supplement and strengthen in the highest degree all the other social forces which are making for manhood, breadth and citizenship, the school has defrauded the undergraduate, has failed of its duty as a social agent and has sealed its own doom.

Even though they be nineteen or twenty years of age, most youth come to a college mere boys in their childish attitude of mind, their undeveloped sense of personal responsibility, their hazy outlook upon life and their distorted perspective of themselves in the community. They ought to be graduated, however, with their minds ripened and their vision cleared. Indeed, the years of their college life will have been largely wasted unless, in those years, they have acquired a mental and moral seriousness far greater than that of the less well-educated man.

Limiting ourselves to the school of applied science, perhaps its paramount duty and opportunity is to impress upon a youth as he enters manhood the fact that living, instead of being a game of pleasure or of chance, or a haphazard acceptance of what comes along, is an actual profession,—is, indeed, the leading vocation of every man,—a profession to be studied, perfected and strategically planned with interested thoroughness and far-seeing care. This right view of life can be instilled, not only by giving the college youth ever wider choice of work, initiative in working and responsi-

Digitized by Google

bility for the quality of his work (while holding him to a rational and ordered sequence of development), but also by teaching him such things and in such a way as to make him increasingly aware of a man's power over circumstance, and of the multiform opportunity which every individual has to shape his own career.

Another chief use of the education given in a scientific school should be to expand a young man's vision, to teach him the difference between the small and the great things of life, to train him to see the world from a clear mountain peak of intellectual tolerance rather than from a foggy valley of personal prejudices. This breadth and catholicity can be inspired by building all his professional and technical training upon basic truths and principles; by framing his courses of study upon those fundamental historical, philosophical and linguistic subjects which (quite too exclusively) made up the college course of half a century ago; and, most of all, by seeking every opportunity to impress upon each student the fact that what makes for leadership and power in professional life is not familiarity with technical details and an extraordinary memory for formulas, but ability to view questions in a large way, to deal with new problems, to handle subordinates easily and justly, to meet equals and superiors tactfully and upon the broad platform of many human as well as professional interests.

A student will not have secured seriousness and breadth, however, if on graduation he believes that his professional training is to be used wholly to satisfy his personal—and very proper—ambition for power and for wealth. He must also have been made to realize that, being an extraordinary debtor to society, he owes an immense debt of future service to the community. He should also have learned that the main business of an educated man is to grow into wide use-

Digitized by Google

fulness by practising the "gregarious" virtues, by placing his abilities as far as possible at the service of his neighborhood and State, by increasing the five talents of his collegiate training into the many times ten talents of personal and social power. To this end his technical and his non-technical teaching should have emphasized those subtle, unselfish, moral qualities which lie at the foundation of professional ethics, engineering honor and true devotion to the good of the State.

Whatever may be the sequence of studies, the ramification of "electives," or the emphasis upon this detail or upon that, the student should never be allowed to become so confused by these minutiæ as to lose sight of what he goes to a school of applied science for. In the student's own mind he goes primarily to obtain certain information, a measure of technical skill and a scientific jargon which will enable him to secure and to hold some remunerative professional position. If this mental attitude is not rectified, or is encouraged by the placing of too much emphasis upon technical information, "knacks," formulæ and phrases, the youth will devote himself zealously, even enthusiastically,—but none the less fatally,—to things which, without the higher aims, are but the chaff of education. The strongest evidence of a Freshman's lack of education is that he does not know how to appraise those tasks which he must or may do, that he does not understand what the world is going to demand of him as the price of real professional success.

To educate him, therefore,—in the right meaning of education—the school of applied science must not content itself with giving him that technical information which, to his untrained vision, is all that he requires; it must hold before him and must teach him to understand the value and importance of those higher standards by which his work as

Digitized by Google

a man and as an engineer will be judged by his future employers, by his associates and by the world at large. He cannot foresee, therefore he must deliberately be made to appreciate, that behind and underneath his technical information and scientific skill he should possess at least three other things: seriousness of view, breadth of mind and a sense of civic responsibility. With the first he will learn how to measure and control his own life; with the second he will learn how to weigh the lives of others; with the third he will learn how to place himself and all he does into right perspective with the whole order of society; and with all three together he will be ready to meet and conquer practically every one of those problems, moral, social, or technical, with which his life is certain to be filled.

To keep these large purposes and true aims of education before themselves and their students is extremely difficult for the teaching staff, engrossed as they must necessarily be in the thousand details of teaching and discipline, and hounded as they are from without and within to equip their students (like automobiles) with every latest device for technical speed and efficiency. That the faculties of most schools of technology have been able to preserve the wider view is cause for wonder and congratulation. With the greater specialization and haste of modern life, however, they will find this to be increasingly difficult unless they receive organized and unflagging help from those who stand far enough from the details of instruction to see that teaching in proper perspective and to measure its real results. The two bodies near enough to the school of applied science to understand its internal methods and aims, and yet far enough away from it to gauge its final influence upon young men and its ultimate effect upon the industrial and social structure, are, of course, the Trustees and the alumni. In every

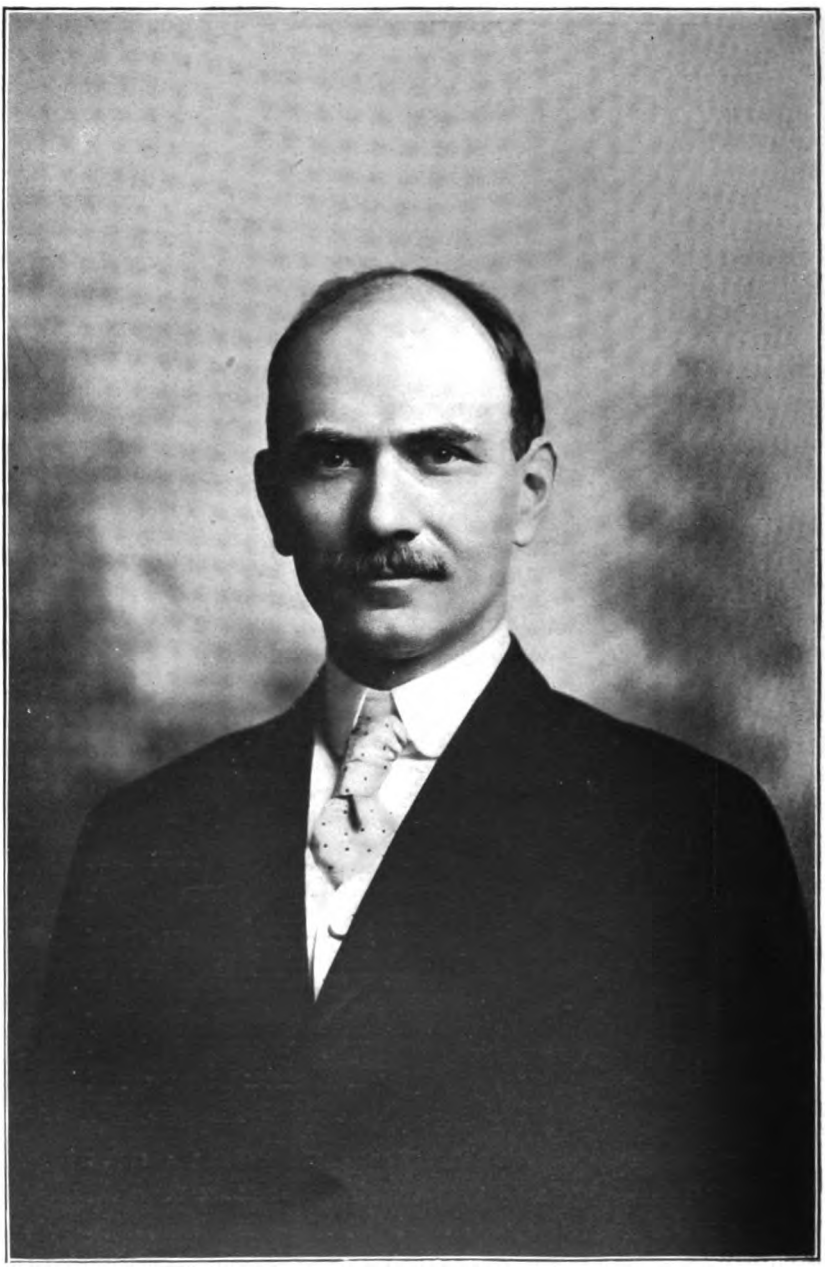
Digitized by Google

way possible they should identify themselves with their college and its undergraduates; and, while refraining from interference with the details of courses or of teaching, should keep clearly before the students those real aims and ends of all higher education which their experience of life should have made them clearly see. Just how they are to do this is not within the present scope even to suggest. Moreover, no two colleges of science would approach the problem in the same way. But that these high standards must be held before the undergraduates of all such colleges, and that the Trustees and alumni must give conspicuous help in doing so, are, I think, self-evident truths in higher education.

JAMES PHINNEY MUNROE, '82.

Digitized by Google

Digitized by Google



PROFESSOR DUGALD C. JACKSON

Digitized by Google

DUGALD C. JACKSON

Professor Dugald C. Jackson, of the University of Wisconsin and head of the Electrical Engineering Department, has just been elected to the place of Professor of Electrical Engineering and head of the Electrical Engineering Department in the Massachusetts Institute of Technology, as the successor of Dr. Louis Duncan, who resigned about a year and a half ago.

Professor Jackson comes to the Institute with a very creditable career behind him. Born of Quaker stock at Kennett Square, Chester County, Pennsylvania, Feb. 13, 1865, he was fitted at the Hill School, Pottstown, Pa., for the Pennsylvania State College, from which he was graduated in the civil engineering course in 1885. He was fellow and instructor in electrical engineering at Cornell University for two years. He joined the University of Wisconsin Faculty in the autumn of 1891, upon the establishment of the department of electrical engineering, as Professor of Electrical Engineering and head of the department. He organized the course in electrical engineering, and taught various branches pertaining thereto, but has made a specialty for several years of alternating currents and alternating current machinery, and of central station practice. Under his administration there has grown up in the University of Wisconsin one of the strongest schools of electrical engineering in the country.

Professor Jackson has also combined in a very admirable way practice of his profession with the work of the teacher, having served as consulting engineer and expert in many

Digitized by Google

large pieces of important engineering work. He is the senior member of the firm of D. C. & William B. Jackson, who do a considerable business in the West as consulting engineers.

He has published the following books: "Text Book on Electromagnetism and the Construction of Dynamos" (1893); "Electricity and Magnetism" (1895); "Alternating Currents and Alternating Current Machinery," joint author (1896); "An Elementary Book on Electricity and Magnetism," joint author (1902). He has in preparation a book on Central Station Practice, and a completely rewritten edition of the before-mentioned book on Alternating Currents and Alternating Current Machinery. He has delivered numerous addresses, and has written articles on matters relating to engineering practice or engineering education, which have been printed in the Transactions of engineering or educational societies and various technical journals. He is a member of the American Institute of Electrical Engineers, American Society of Civil Engineers, American Society of Mechanical Engineers, Western Society of Engineers (now vice-president), Société Internationale des Électriciens, Society for the Promotion of Engineering Education (now president), etc., and also is connected with various Associations, like the Northwestern Electrical Association, National Electric Light Association, American Street Railway Association, etc. He was connected with the Edison Electric Lighting and Sprague Electric Railway interests before coming to the University of Wisconsin, and has since been technical adviser to various manufacturing and other corporations. He was married on Sept. 24, 1889, to Miss Mabel A. Foss, of New Gloucester, Me., and has two children.

He does not expect to begin his work with the Institute

Digitized by Google

until the beginning of the second term. In the meantime Professor Clifford will continue to be acting head of the department.

Professor Jackson's coming to the Institute will strengthen the corps of instructors by the addition of a man of large practical experience, of high academic aims, and of vigorous and progressive ideas in education. It is believed also that he will be able to strengthen the connection between the teaching and practice of the electrical engineering profession.

Digitized by Google

THE CLASS OF '81 GATE

The representative of the Technology Fund Committee from the class of '81, in reply to a circular sent out in the middle of the winter, received a letter from one of the members of the class, suggesting the practicability of subscribing to a fund with a more definite purpose. A conference with the chairman of the Advisory Council on Athletics elicited the suggestion that a Memorial Gate to the Athletic Field would be most appropriate.

Immediate action was then taken, and circulars issued requesting the members of the class of '81 to subscribe to a "Twenty-fifth Anniversary Fund," which should be used primarily to build a suitable main gate at the Athletic Field, any balance to be placed with the Advisory Council on Athletics, to be spent for such purposes as they might see fit in connection with their work.

At the reception given to the graduating class by the Alumni Association, the assistant secretary of the class of '81 announced that the "'81 Fund," amounting to almost $1,000, had been placed in the hands of the Advisory Council on Athletics, and would be expended for athletic purposes.

The gate has been constructed during the summer, directly by the Advisory Council. It consists of two ten-foot high and forty-inch square piers of select sand water-struck brick on solid concrete foundation, with granolithic caps, four feet square. Surmounting the piers are steel arches of graceful design, and in the centre is set a bronze tablet with the following inscription, by F. Gelett Burgess, M. I. T. '87.

CLASS OF '81.

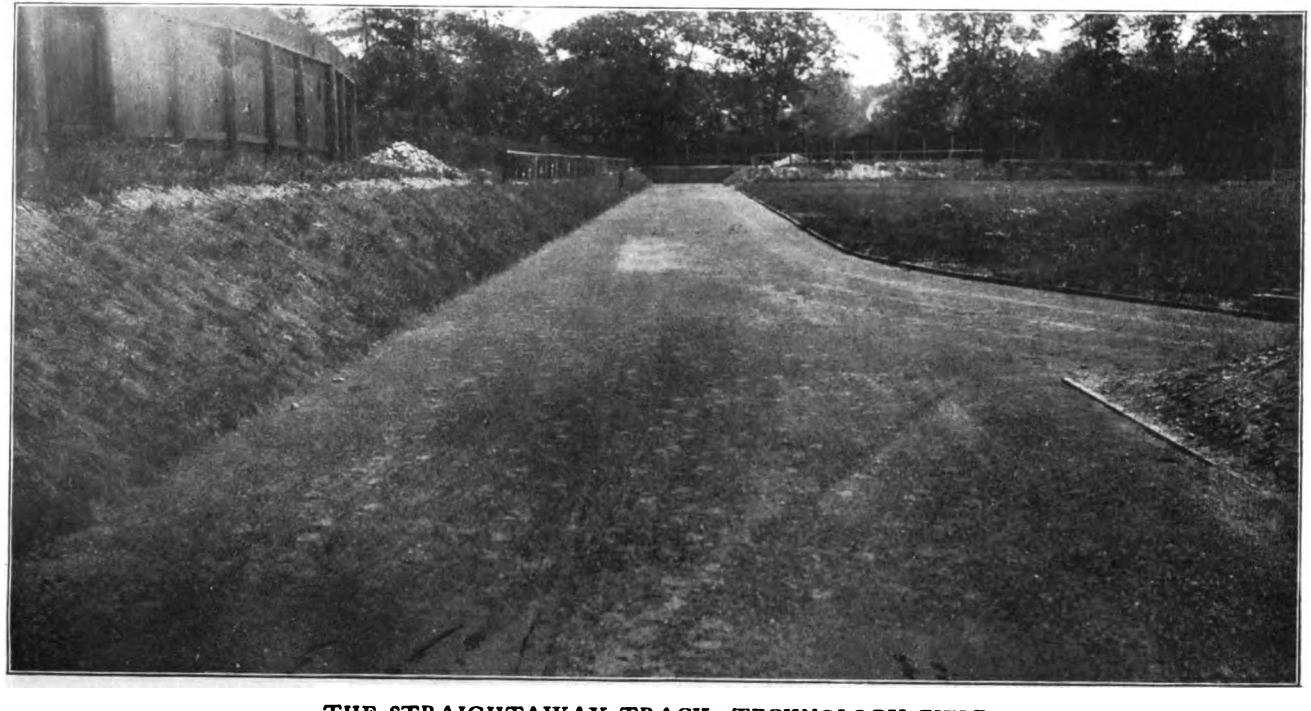
NOT THE QUARRY, BUT THE CHASE
NOT THE LAUREL, BUT THE RACE
NOT THE HAZARD, BUT THE PLAY
MAKE ME, LORD, ENJOY ALWAY!

1906.

Digitized by Google

THE CLASS OF '81 GATE

Digitized by Google



THE STRAIGHTAWAY TRACK, TECHNOLOGY FIELD

Digitized by Google

The gates are of heavy two-inch pine, natural finish, and are ornamented with handles bearing the numerals of the class and with ornamental wrought iron hinges. The gate has been pronounced to be architecturally one of the best in this section of the country.

There also has been constructed at Technology Field this summer a 220-yard straightaway track, which gives the additional advantage, in connection with the former track, that a quarter-mile race can now be run with only one turn. This track necessitated a heavy cut at each end, and in order to give the maximum distance, and as a matter of economy in care of the track, a two-foot concrete wall, six feet high, twenty feet long, has been placed at each end, and the track has been sodded on both banks.

The addition of this track makes Technology Field the best athletic practice ground in New England.

The "'81 Fund" was subscribed to by twenty-five different members of the class. The class of '81 was always prominent in athletics when undergraduates. The present Athletic Association was instituted to a great extent by members of this class, Mr. H. H. Cutler, now of the Cutler-Hammer Company of Milwaukee, being the first vice-president. Dr. John Duff of Charlestown, Major Briggs of Boston, George Mower, the managing director of the Sturtevant Blower Company in Europe, were members of the football team. Lieutenant Henry N. Sweet of Boston, Governor Frank W. Rollins of New Hampshire, Colonels George R. Wallace, Fred T. Walsh, Emmons Crocker of Massachusetts, Colonel Thomas N. Hastings of New Hampshire, Godfrey L. Cabot, Arthur Winslow, and Frank E. Darlington were members of the class also.

The construction of the gate marks a new epoch in the history of Technology Athletics, and is in line with the remark of the member of the Corporation who gave the money to build most of the fence round the field, and the grand and field stands, that he "wanted to do something that would benefit the undergraduates."

Digitized by Google

THE NEW GYMNASIUM

The expiration of the lease of the ground on which our old Exeter Street Gymnasium was situated and the unwillingness to renew the same made it necessary for the Institute to move the old gymnasium or erect a new one elsewhere. The latter plan seemed the better, and after much deliberation a site was chosen on our Garrison Street lot adjoining the Mechanical Laboratories. The new gymnasium was completed in December, 1905. It is built of brick with a slate roof and a steel frame. It is a parallelogram in form, running north and south. On the north extends an L containing dressing-rooms, lockers, toilet-room, shower-room, and a heater and boiler for heating water. The gymnasium is heated by steam from the boilers of the Mechanical Laboratories.

The main building, or gymnasium proper, is 90 feet by 60, and contains one and one-half stories. The ceiling is 29 feet high in the centre, and 12 feet high at the sides to plate. It is covered by a simple open-timbered roof, supported by eight steel trusses. Each side wall contains eighteen windows, giving abundance of light.

The L is 60 feet by 30, and contains one story. The ceiling is open-timbered, and is 12 feet high. The entrance to the L leads into the dressing-room, 42 feet by 30, containing 113 large lockers and 228 small ones, also the heater and a 500-gallon boiler, which furnishes an adequate supply of hot water for the shower. On the right are the toilet-room, 18 feet by 12, and a shower-room, 18 feet by 18, containing 5 shower baths.

The main entrance to the gymnasium leads into the gymnasium floor on the east side near the L. On the right are the offices of the gymnasium instructor and the track coach and the above-mentioned entrance to the dressing-room. On the east and west sides of the gymnasium floor are chest weights, 31 sets in all. On the south side is the hand-ball court. In the south-east corner are the dumb bell and Indian club racks. The hanging apparatus is suspended from the trusses. The floor apparatus is portable. In

Digitized by Google

the centre of the building is the basket-ball floor. In the corners of the floor are placed portable raised corners, making an excellent running track, 19 laps to the mile. Down the centre of the floor a 35-yard dash space is obtained, beginning in the edge of the dressing-room. This opens on the gymnasium floor by raising two wide doors. During track meets, basket-ball games, fencing meets, and gymnastic meets, seating capacity for 300 is furnished by means of a portable bench gallery, which is placed on the east side of the floor. This is a unique device, and works exceptionally well. The gymnasium is well lighted by electricity from the Edison Company. This is a great improvement over lighting by gas, as in our old gymnasium, since it is so much easier to ventilate.

The gymnasium was built at a very moderate cost, but is well adapted for present needs. It is better than our old one in every respect, and offers far superior advantages to the students for exercise and recreation.

At the opening of the Institute in the fall, physical examinations are given to all students intending to take regular class work during the winter. This consists of about 20 measurements and a strength test. From these charts each student is informed of his deficiencies and is advised as to those exercises which will be most beneficial to him. In the spring a like examination is given to those students who took one in the fall, so that each student may note his exact increase in development and strength.

Work in the gymnasium is optional. Regular class work begins the first Monday after the Tech Field Day, and extends through the winter until about the middle of April, when the second physical examinations begin. There are six classes a week, on Mondays, Wednesdays, and Fridays at 4.15 and 5.15 P.M. The work comprises mainly free exercises, dumb bells, Indian clubs, and heavy gymnastics, such as parallel bars, high and low horizontal bar, high and low buck, side horse, horizontal ladder, and tumbling. Two years ago a gymnastic team was organized, and this team has given some excellent exhibitions.

The track team holds indoor practice during the winter, on Tuesdays and Thursdays from 4 to 6, in preparation for its numerous

Digitized by Google

meets held during the winter. Although attendance at the gymnasium has not been all that could be desired, the few months that we have had our new gymnasium have shown us that it will attract a great many more men than our old one possibly could.

WINFIELD C. TOWNE.

Digitized by Google

LOWELL INSTITUTE

PROGRAM FOR 1906–07

The Trustee of the Lowell Institute, under the will of John Lowell, Jr., maintains annually in the city of Boston various Courses of Free Public Lectures. For the present—the sixty-eighth—season five distinct series are provided, to all of which admission is free (but only under certain conditions), as follows:—

I. Public Lectures in Huntington Hall, 491 Boylston Street.

II. Evening School for Industrial Foremen, under the auspices of the Massachusetts Institute of Technology.

III. Teachers' School of Science, mainly under the auspices of the Boston Society of Natural History.

IV. Evening Courses for Workingmen, under the auspices of the Wells Memorial Institute.

V. Public Lectures in King's Chapel on Current Problems in Theology, under the auspices of the Harvard Divinity School and by members of its Faculty.

Further information in regard to the several series is given below.

A. LAWRENCE LOWELL, *Trustee.*

W. T. SEDGWICK, *Curator.*

I. PUBLIC LECTURES IN HUNTINGTON HALL

The First Course will be eight lectures by Percival Lowell, non-resident Professor of Astronomy at the Massachusetts Institute of Technology, Director of the Lowell Observatory, Flagstaff, Ariz., and Medallist (Mars) of the French Astronomic Society, on "Mars as the Abode of Life": 1. Planetary Evolution: the Conditions and Possibilities of Life; 2. Natural Features of Mars; 3. Geology and Areology: Mars and Glacial Epochs; 4. Geology and Areology: Loss of Oceans and Growth of Deserts; 5. Habitability: Probability of Life on Mars; 6. Non-natural Features: Canals and Oases; 7. Metamorphoses of the Canals; 8. Habitation: Proofs of Life

Digitized by Google

on Mars. On Mondays and Thursdays at 8 P.M., beginning October 15.

The Second Course will be eight lectures (in French) by M. le Dr. Pierre Janet, Professeur de psychologie au Collége de France, Directeur du laboratoire de psychologie de la Salpêtrière, on "Psychotherapeutics, or the Applications of Psychology to Therapeutics" (La psychothérapie, les applications de la psychologie à la thérapeutique): 1. Résumé historique; 2. Principe de la psychothérapie. Influence des états psychologiques sur la santé physique et morale; 3. Psychothérapie générale, l'exhortation morale; 4. Les méthodes suggestives; 5. Les méthodes d'isolement et de repos; 6. L'éducation motrice; 7. L'éducation de la sensibilité, l'æsthésiogénie; 8. Le relèvement de la tension psychologique l'éducation de l'émotivité. On Tuesdays and Fridays at 8 P.M., beginning October 23.

The Third Course will be eight lectures by Barrett Wendell, Professor of English in Harvard University, on "Contemporary France": 1. The Universities; 2. The Structure of Society; 3. The Family; 4. The French Temperament; 5. The Relation of Literature to Life; 6. The Question of Religion; 7. The Revolution and Some of its Effects; 8. The Republic and Democracy. On Mondays and Thursdays at 8 P.M., beginning November 12.

The Fourth Course will be eight lectures by William James, Professor of Philosophy in Harvard University, on "The Movement called 'Pragmatism' in Recent Philosophy." On Wednesdays and Saturdays at 8 P.M., beginning November 14.

The Fifth Course will be eight lectures by Alfred C. Haddon, Sc.D., F.R.S., University Lecturer in Ethnology, Cambridge, England, on "The Melanesians: Racial Problems, Distribution of Culture, Social and Religious Evolution." On Tuesdays and Fridays at 8 P.M., beginning November 20.

The Sixth Course will be two lectures by William H. Furness, 3d, M.D., F.R.G.S., Fellow of the Anthropological Institute of Great Britain and Ireland, etc., on "The Kayan and Kenyah Tribes of Borneo, and the Natives of Uap in the Caroline Islands." On Monday, December 10, and Thursday, December 13, at 8 P.M.

Digitized by Google

The Seventh Course will be eight lectures by Professor George E. Woodberry, on "Poetic Energy." On Tuesdays and Fridays at 8 P.M., beginning Jan. 8, 1907.

The Eighth Course will be eight lectures by Colonel Sir Colin Scott Moncrieff, LL.D., Knight Commander of the Star of India, etc., on "The English in India and Egypt." On Mondays and Thursdays at 8 P.M., beginning February 4.

The Ninth Course will be eight lectures by Frank M. Chapman, Curator of Ornithology, American Museum of Natural History, New York City, on "The Distribution of North American Birds." On Tuesdays and Fridays at 8 P.M., beginning February 5.

The Tenth Course will be six lectures, by Charles Sedgwick Minot, D.Sc., LL.D., etc., James Stillman Professor of Comparative Anatomy in the Harvard Medical School, on "The Problem of Age, Growth, and Death." On Mondays and Thursdays at 8 P.M., beginning March 4.

The Eleventh Course will be eight lectures by Russell H. Chittenden, LL.D., Professor of Physiological Chemistry and Director of the Sheffield Scientific School of Yale University, on "The Nutrition of Man." On Tuesdays and Fridays at 8 P.M., beginning March 5.

The Twelfth Course will be eight lectures by Albert Bushnell Hart, LL.D., Professor of History in Harvard University, on "The Real South." On Mondays and Thursdays at 8 P.M., beginning March 25.

Method of Ticket Distribution

Tickets are distributed to the public, free of charge, as follows:—

Admission tickets to the first lecture of each course will be mailed one to each applicant, in the order of application, and, until the supply is exhausted, to all persons applying by letter more than two days before the beginning of any course, to the Curator of the Lowell Institute, 491 Boylston Street, Boston, and enclosing a stamped addressed envelope.

Persons desiring to secure tickets for more than one course must

Digitized by Google

send a separate stamped addressed envelope for each ticket and each course. All such envelopes will be filled or placed on file, but, in general, tickets for any course will not be mailed to applicants until a few days before that course begins. When tickets are much in demand, only one ticket will be sent to any one applicant.

On and after the day on which a course begins any tickets left over for that course may be obtained at the office of the Lowell Institute, 491 Boylston Street, between the hours of 10 A.M. and 4 P.M., or by sending to the Curator, with a specific request for such left-over tickets, a stamped addressed envelope; but no tickets will be given out at the office of the Lowell Institute for any course before the day on which that course begins.

All persons attending the first lecture of any course may, just before entering the hall, exchange their admission tickets to the first lecture for tickets good for the entire course and for reserved seats.

In order to make the distribution fair, and to avoid a rush for the best seats, all reserved seat tickets are placed beforehand in envelopes, some containing one ticket good for one reserved seat, some containing two or more tickets good for adjoining seats. The envelopes are then shuffled, and at the first lecture of any course all who desire to do so may, as stated above, exchange their first lecture admission tickets at tables in the vestibules for envelopes drawn by lot, containing course tickets good for reserved seats.

II. EVENING SCHOOL FOR INDUSTRIAL FOREMEN

The Trustee of the Lowell Institute has established in the Institute of Technology a Free Evening School for Industrial Foremen, comprising at present two courses, one mechanical, the other electrical, each extending over two years.

These are intended to bring the systematic study of applied science within the reach of young men who are following industrial pursuits and desire to fit themselves for higher positions, but are unable to attend day courses of instruction.

The work of the school includes recitations, lectures, drawing-room practice, and laboratory exercises, and is given by members

Digitized by Google

of the Faculty of the Institute of Technology. To those who satisfactorily complete the required courses of the two years, and pass the examinations, certificates are given.

The school is open only to those who are ambitious and willing to study.

The present school year begins Oct. 1, 1906. Attendance from 7.30 to 9.30 for three or four evenings a week is required, in addition to outside study. The entrance examinations are, in a measure, of a competitive nature, and considerable weight is attached to the applicant's occupation and practical experience.

A circular giving more detailed information may be obtained by sending a stamped addressed envelope to the Director, Lowell Institute Free Evening School for Industrial Foremen, Massachusetts Institute of Technology, Boston.

III. TEACHERS' SCHOOL OF SCIENCE

Free lectures maintained by the Lowell Institute in the Teachers' School of Science, mainly under the auspices of the Boston Society of Natural History, will be given during the season as follows:—

1. "Field Lessons in Botany." By Mr. Hollis Webster.
2. "Field Lessons in Zoölogy." By Mr. Albert P. Morse.
3. "Field Lessons in Geology." By Professor George H. Barton.
4. "Laboratory Lessons in Botany." By Mr. Hollis Webster.
5. "Laboratory Lessons in Zoölogy." By Mr. Albert P. Morse.
6. "Laboratory Lessons in Geology." By Professor George H. Barton.
7. "Lectures and Laboratory Exercises in Alternating Currents." Under the direction of Professor H. E. Clifford.

A circular giving further information may be obtained by sending a stamped addressed envelope to the Curator of the Teachers' School of Science, Boston Society of Natural History.

IV. EVENING LECTURES FOR WORKINGMEN

Free instruction, especially arranged for workingmen, will be maintained by the Lowell Institute during the winter under the auspices of the Wells Memorial Institute, as follows:—

Digitized by Google

1. "On Practical Electricity." Twenty lectures for beginners. By Professor William L. Puffer.

2. "On Mechanical Drawing." Twenty lectures for beginners. By Mr. Harrison W. Hayward.

3. "On Machine Drawing." Twenty lectures for Advanced Students. By Mr. Harrison W. Hayward.

4. "On Practical Mechanics." Twenty lectures. By Mr. Harrison W. Hayward.

5. "On Steam and Steam Engines." Twenty lectures for beginners and for advanced students. By Mr. Thomas Hawley.

6. "On Household Science, Cookery, etc." Fifteen lectures. By Miss Anna Barrows.

Further particulars, with instructions how to obtain admission, may be obtained by sending a stamped addressed envelope to the Secretary, Lowell Free Courses, Wells Memorial Institute, 985 Washington Street, Boston.

V. LECTURES IN KING'S CHAPEL ON CURRENT PROBLEMS IN THEOLOGY

Free lectures maintained by the Lowell Institute, under the auspices of the Harvard Divinity School, and by members of its Faculty, will be given as follows:—

1. "The Study of Theology and the Preaching of Religion." By Professor F. G. Peabody, D.D. November 5, "The Call to Theology"; November 12, "The Spirit of Theology."

2. "Foreign Influences on the Religion of Israel." By Professor G. F. Moore, D.D.,LL.D. November 19, "Babylonian Influence"; November 26, "Persian Influence"; December 3, "Greek Influence."

3. "The Present State of Old Testament Criticism." By Professor C. H. Toy, LL.D. December 10 and December 17.

4. "The Absoluteness of Christianity and the History of Religion." By Professor E. C. Moore, D.D. Jan. 7 and Jan. 14, 1907.

5. "The Authority Concept in Christianity." By Professor W. W. Fenn. January 21 and January 28.

Digitized by Google

6. "The Historical Criticism of the Gospels." By Professor J. H. Ropes, D.D. February 4 and February 11.

All of these lectures will be given in King's Chapel, on Mondays at 3 P.M. Tickets may be secured, free of charge, at the door, at the Harvard Divinity School, or by applying by mail to the Curator of the Lowell Institute and enclosing a stamped addressed envelope.

Digitized by Google

GENERAL INSTITUTE NEWS

THE PRESIDENCY

In the Boston papers of October 17 it was officially announced that Professor Andrew Fleming West, dean of the Graduate School of Princeton University, had been invited, by the Executive Committee of the Corporation, to take the Presidency of the Institute in succession to Dr. Pritchett. It is understood, however, that Dr. West desires ample time in which to consider the invitation; and as, at the time of going to press, his reply has not been received, it is impossible for the REVIEW to make any further announcement regarding this important matter.

CORPORATION NOTES

At the annual meeting of the Corporation on October 10, Dr. Francis H. Williams was elected secretary of the Corporation for the ensuing year. Mr. Frederick P. Fish was re-elected a member of the Executive Committee for a term of five years. Upon nomination by a special committee appointed for the purpose, standing committees and visiting committees were elected for the ensuing year.

At this meeting the following appointments were confirmed: Dugald C. Jackson, Professor of Electrical Engineering; George C. Shaad, Assistant Professor of Electrical Engineering; George Meister, Instructor in Modern Languages; Floid M. Fuller, Royal R. Heuter, Malcolm C. Mackenzie, Henry R. Patterson, Everett F. Tomlinson, Assistants in Mechanical Engineering; Harold M. Beers, Royall D. Bradbury, Arthur M. Chidester, George R. Guernsey, William Tufts, Assistants in Civil Engineering; Leavitt N. Bent, Anna M. Cederholm, Assistants in Technical Chemical Research; Arthur Neale, Assistant in Technical Analysis; William J. Walsh, Assistant in Heat Measurements; Herbert T. Kalmus, Research Associate in Physical Chemistry; Fred C. Mabee,

Digitized by Google

Ledyard Sargent, E. B. Spear, Research Assistants in Physical Chemistry; Assistant C. J. Emerson was promoted to Instructor in Heat Measurements.

SECRETARY OF THE INSTITUTE

Some months ago the Executive Committee decided to rearrange the distribution of the administrative work of the Institute, and with this end in view it was voted to establish a new office, that of Secretary of the Institute. The Secretary will be an administrative officer giving practically his whole time to the work of the place, and the duties of the position, in so far as they have at present been determined, will include the following: administrative assistance to the President; conduct of the general correspondence, as well as the correspondence with students and parents; general oversight of the work of the Registrar and Recorder; preparation and distribution of publications; development of relations with the alumni; and, in general, such assistance to officers and committees of the Corporation and of the Faculty in the preparation of Institute business as would fall naturally to the work of a secretary.

The permanent appointment of the Secretary will not be made until after the election of the new President; but in the mean time Professor Bartlett, '86, has been asked to take charge of the office.

Under this arrangement Professor Tyler, who for many years has combined with so much success the duties of Secretary of the School and of the Faculty with his work of teaching, will be enabled to devote his entire time to the development of the work of the Mathematical Department, of which he is the head.

At the Faculty meeting of September 26 the President presented the following letter, which was referred to the Special Committee on Faculty Organization:—

SEPTEMBER, 24, 1906.

PRESIDENT HENRY S. PRITCHETT:

Dear Sir,—The action of the Executive Committee communicated to me by your letter of June 12 affects somewhat fundamentally the distribution of Faculty administrative business, and at the same time expresses

Digitized by Google

the desire of the Executive Committee that I devote my entire time to my mathematical work.

For these reasons, and in order that the Faculty may deal as freely as may be with its share in the situation, I respectfully tender my resignation as Secretary of the Faculty, to take effect as soon as it may be practicable for the Faculty to make other provision for the duties of that office.

May I ask if you will present this resignation to the Faculty on Wednesday? Very truly yours,

(Signed) H. W. Tyler, *Secretary.*

REGISTRATION

As compared with last year, and at the same time of the term, the registration of the Institute has fallen from about 1,430 to about 1,375. This drop from the number of last year is due in part to the fact that the class which was graduated last June was the largest in the history of the school, and is replaced by a considerably smaller first-year class,—smaller, except for last year's, than for several years.

The number of persons admitted on examinations is somewhat larger than last year, as is the first-year class.

One hundred and thirty-one of those who have been admitted to the Institute from other colleges without examinations have distributed themselves among the four years as regular and special students, as follows:—

First Year:	Regular	15		
	Special	9	Total	24
Second Year:	Regular	23		
	Special	27	Total	50
Third Year:	Regular	24		
	Special	30	Total	54
Fourth Year:	Regular	0		
	Special	3	Total	3

Among the institutions represented by graduates or students transferring to the Institute are:—

Digitized by Google

Adelbert College, Agricultural and Mechanical College of Texas, Amherst College, Armour Institute of Technology, Adrian, Bates, and Bowdoin Colleges, Brooklyn Polytechnic Institute, Bushnell University, Canisius College, Case School of Applied Science, Charleston and Colby Colleges, Colegio El Porvenir, Colorado School of Mines, Columbia University, Cooper Union School, Dalhousie and Dartmouth Colleges, De Pauw University, Hampden Sidney College, Harvard University, Immaculate Conception College, Indiana University, Iowa State College, Johns Hopkins University, Kenyon College, Leland Stanford University, Louisiana State and Miami Universities, Middlebury College, New Hampshire College of Agriculture and Mechanic Arts, New York, Northwestern, Notre Dame, and Ohio State Universities, Pei Yang, Pennsylvania State College, Princeton University, Randolph Macon College, Rhode Island College of Agriculture and Mechanic Arts, Rose Polytechnic Institute, Rutger and St. John's Colleges, St. Mary's Institute, Sheffield Scientific School, South African and South Carolina Colleges, South-western University, Stevens Institute of Technology, Syracuse University, Throop Polytechnic Institute, Trinity and Union Colleges, United States Naval and Military Academies, Universities of California, Cambridge, Chicago, Havana, Manila, Michigan, Minnesota, Mississippi, Missouri, Rochester, South Dakota, Texas, Virginia, and Wyoming, Virginia Polytechnic Institute, Washington and Jefferson College, Washington and Lee, Washington and Wesleyan Universities, Whitman and Williams Colleges, Yale University.

FACULTY NOTES

Professor Woodbridge, on account of professional engagements in Washington, has asked for leave of absence during the current half-year.

Professor Currier has assisted with the administrative work during the summer vacation, taking charge of the general correspondence in July and August.

Digitized by Google

VACATION NOTES

Professor Hovgaard during his stay in Europe last summer went to Denmark, and spent two weeks on board the latest Danish battleship, the "Olfert Fisher," cruising in Danish waters, and had an opportunity to study various naval technical questions. He spent two months studying ship-building at the Royal Dockyard, and at the shipyard of Burmeister and Wain in Copenhagen, and collected a great amount of valuable material and information for use in the work of instruction at the Institute.

Professor Bigelow writes:—

I had four weeks abroad, three of which I spent in Frankfort-on-the-Main and one in Paris. While in Frankfort, I visited the Real Gymnasium, generally known in Germany as the "Muster Schule," or Model School. It occupies a fine stone building with an ample playground, and impressed me particularly by its abundance of light and excellent ventilation. The spacious, well-lighted hall-ways are ornamented with mottoes, proverbs, etc., and with colored pictures of scenes in German history. The school was originally established as a model for the schools of Frankfort. It never has been officially a model for other schools, but is now generally regarded as one of the best schools, if not the best school, in Germany.

Of course, I gave my attention specially to the instruction in modern languages. I attended several recitations, including the lowest class, or beginners, and the highest class, both in French and in English. The beginners, sexta pupils, in French, had what I should consider a good pronunciation for a Technology student.

In the highest class (prima) in English the teacher read extracts from an English book on the Elizabethan stage. The pupils were thereupon required to stand on the platform, and recite in their own English what they had understood. The pronunciation was not perfect, but very good, and the delivery fluent. At the request of the teacher I gave the pupils a brief account in English of one of my experiences. My story was thereupon told in instalments by a number of pupils.

In the recitations in languages I heard very little German. The exercises were conducted almost wholly in the language taught. Teachers of foreign languages in German schools have acquired the pronunciation of the

Digitized by Google

languages that they teach by residence in the countries of those languages. This is not required by law or ordinance, but is the result of a well-established, one may say invariable, practice of appointing boards and similar bodies. From conversation with teachers and other persons I gathered that the period of required residence abroad varied in different schools from six months to two years.

Professors Bartlett and Lawrence spent the early part of the summer in Spain. Landing in Gibraltar, they made a short trip to Tangier, and then worked northward, visiting Cadiz, Jerez, Seville, Cordova, Granada, Toledo, Madrid, Escurial, Legovia, Saragossa, Burgos, Bilbao, San Sebastian, and other places of less importance. Afterwards they made a journey through Touraine visiting the châteaux of the Loire. Professor Bartlett spent the latter part of the summer among the mountains of the Tyrol and the Dolomites.

Professor Goodwin writes:—

EDITORS TECHNOLOGY REVIEW:

Gentlemen,—I have just received a note from the REVIEW requesting some notes regarding my trip abroad this summer.

As we (Mrs. Goodwin and I) did not reach Bremen until the latter part of July, we made no attempt to visit any of the universities except that of Leipzig, where we proceeded at once after landing, stopping off *en route* only at Hildersheim and Braunschweig to see the very interesting examples of early German timber architecture, for which these towns are famous. We had a delightful time in Leipzig with Professor Ostwald and his family. He says he hopes to return to America within a few years, not to lecture as strenuously as he did last winter, but to sketch and paint. It will be of interest to the many Tech men who have studied under him to know that he has resigned his professorship at the university and retired to his country seat near Grimmer, where he will continue his literary work free from the administrative cares of his laboratory. Professor Max Le Blanc of Karlsruhe has been appointed his successor.

The new Physical Laboratory has been completed since I was last in Leipzig, and is undoubtedly one of the finest, if not the finest, in Germany. I spent a very pleasant day there with Professor Des Coudres, inspecting the various laboratories and equipment; the apparatus for lecture demonstra-

Digitized by Google

tions is unusually fine. The facilities for research are such as to make one envious. As in Berlin, there are two independent departments of Physics (that for mathematical and that for experimental Physics), each with its own lecture-rooms, research-rooms, and equipment of apparatus. The old Physical Laboratory, which for so many years was under the directorship of Wiedemann, has been turned over to the department of Mathematics.

One notable change was to be observed in Leipzig, and that was the decrease in the number of English and American students studying Physics and Chemistry. This is undoubtedly due in part to the enforcement of the recently adopted six semester residence requirement, in consequence of which many students are now going to Zürich rather than Germany for their degrees. In Switzerland a student may go up for his degree on the satisfactory completion of his Arbeit, and two of our graduates in Physics made their Doctor's degree there this summer, after a residence of only one year. It is to be sincerely hoped that the Memorial sent by the Institute Faculty to the German Minister of Education may result in the admission of our graduates to German universities on the same basis as in years past.

After leaving Leipzig, we went to Munich for the Wagner Festival, making a special trip to Rothenburg on the way. This little town is one which no one should pass by, as it far surpasses Nuremberg in picturesqueness, affording, as it does, a perfect picture of a walled mediæval town, unspoiled as yet by any jarring modern note.

The greater part of August and early September we spent in exploring some of the more out-of-the-way parts of the Austrian Tyrol, Dolomites, and Italian Lakes, being favored with almost cloudless weather the whole time. For those who enjoy walking and climbing no sections of the Alps offer a greater variety of attractions than these. Many of the finest points have been made accessible by the various sections of the German-Austrian Alpine Club, through the maintaining during the summer season of comfortable quarters in their numerous *Hütte*, which are located on *Jochs*, summits, and even glaciers.

We returned by the southern route from Genoa, stopping off at Naples, Algeria, and the Azores.

FELLOWS

In order to give greater dignity to appointments to the Fellowships of the Institute, there is now issued to each newly appointed

Digitized by Google

Fellow an engraved certificate bearing the seal of the Institute and the signatures of the President and of the Secretary of the Faculty.

Herbert T. Kalmus, '04, and Daniel F. Comstock, '04, who as Fellows at the Institute have been studying at Zürich, Switzerland, during the past year, were awarded the degree of Doctor of Philosophy last June. Allan W. Rowe, '01, and C. H. Mathewson, who as Fellows of the Institute have been working in physical chemistry at the University of Göttingen, Germany, during the past two years, have also received the degree of Doctor of Philosophy during the past summer.

DEPARTMENT NOTES

CIVIL ENGINEERING

Professor Swain is at present consulting engineer for a bridge across the Merrimack River at Haverhill consisting of six spans, a rolling lift bridge at Gloucester, a pile bridge with steel draw span between Salem and Beverly, and a bridge across the Merrimack at Lawrence. The work of constructing the substructure at Haverhill is nearing completion, one abutment and three piers being nearly completed at the present time. At Gloucester one abutment has been completed, and work is being done upon the other. Contracts are just being advertised for the bridge between Salem and Beverly, and studies are being made for the proposed bridge at Lawrence, which is to be built by the Bridge Commission of that city. Mr. J. E. Barlow, a graduate of Course I. in the class of 1905, and last year an assistant in the Civil Engineering Department, is one of the bridge commissioners.

Professor Swain has also been appointed by the mayor a member of the Commission to revise the Building Laws of the City of Boston.

Mr. S. H. Thorndike has resigned his position as instructor in the Civil Engineering Department, and is employed in the office of the city engineer of Boston.

Five members of the graduating class of last year have been ap-

Digitized by Google

pointed as assistants: namely, R. D. Bradbury, H. W. Beers, A. M. Chidester, G. R. Guernsey, and William Tufts.

Mr. Hosmer and Mr. Breed, instructors in the Civil Engineering Department, have prepared a work on surveying which is being published by John Wiley & Sons, and which, it is expected, will be ready for the use of classes this year.

Mr. Hosmer has been engaged during the greater part of the summer in the work of surveying the boundary lines of the State under the Harbor and Land Commission. Mr. J. W. Howard, instructor in the department, and Mr. Kilburn Whitman, assistant, have been engaged upon the same work.

At the meeting of the Society for the Promotion of Engineering Education, which was held at Ithaca, N.Y., in July, the Civil Engineering Department was represented by Professors Swain and Allen. Professors Tyler and Talbot were also present. Professor D. C. Jackson, then of the University of Wisconsin and who comes to the Institute as head of the Department of Electrical Engineering, was elected president of the society for the ensuing year.

Very important changes have been made in the course scheme in civil and sanitary engineering. The principal alteration consists in the omission of one year of modern language, so that students in these courses will hereafter complete their study of French and German at the end of the Freshman year. The object of this change is to render it possible to take up the study of mechanics at the middle of the second year, immediately following the physics of the first term. The course in mechanics will be completed at the middle of the third year, and will be followed by the course in structures, which will continue until the completion of the course, rendering the entire course consecutive and connected. Various minor changes have been made, such as increasing the time given to descriptive geometry and to steam engineering, the hope being not only to strengthen the professional work, but to ease up a little and give more time to some of the studies in the curriculum, thereby lessening to some extent the pressure upon the students, with the expectation that this will enable them to do better and more thor-

Digitized by Google

ough work. The attempt is also being made to reduce the number of studies taken at any one time by students in these courses. It is believed by the Department of Civil Engineering that these changes will result in very great benefit to the courses. It should be added that any student who wishes to pursue French or German further than required in the course has the opportunity to do so by taking one of these studies as an option in the third year.

MECHANICAL ENGINEERING

The officials of the Boston & Maine Railroad, having acquired a large passenger locomotive provided with a superheater, and desiring to ascertain its performance and economy as compared with those of a similar locomotive without a superheater, two of the students, under the direction of Professor Lanza, have carried on during the summer a series of road tests, including six runs of over 100 miles each with the former and four runs of the same length with the latter. The experimental work on the road has been completed, and the data have thus been obtained. The computations will be made during the term.

For many years there have been performed by students of the department investigations which involve road tests of locomotives and others which involve some series of experiments performed on the road, such work having been performed on several different roads. Thus, last year, the experimental determination of the greatest load coming upon the driving springs when the locomotive passes over irregularities in the track formed the subject of one of the theses, while a few years ago one of the theses had for its object a comparison of the performance and economy of a large compound freight locomotive with those of a single one of special design employed in the same service.

MINING ENGINEERING

The Summer School this year was an extremely interesting one. It was held in Minnesota, where the Burt-Pool mine and the Mahoning Mine were visited, each of them able to handle 20,000

Digitized by Google

tons a day by the open pit method; also in Michigan where the Newport deep mine at Ironwood and the Chapin deep mine at Iron Mountain were visited and studied. Later the copper country was visited, where the Champion and Baltic Mines, the Champion, Trimountain, Quincy, and Osceola Mills, and the Michigan and Calumet Smelters were studied with great interest by the students. At Sault Ste. Marie, Ontario, the party visited the iron blast furnace and the electrical smelting plant, as well as the charcoal by-product plant, of the Algoma Steel Company, and at Sudbury they visited the mines and works of the two prominent nickel mining companies. A very enjoyable feature was the voyage up from Ashtabula to Duluth on the ore steamer "John G. Allbright," which privilege was given to the party through the kindness of M. A. Hanna & Co. Privileges in Minnesota were given by the Duluth, Missabe & Northern Railroad, and in the copper country by the Copper Range Railroad Company.

Professor Locke has been making a tour of mines and prospects in New England and the Province of Quebec for the purpose of gaining professional experience and enlarging his ability to do for the students.

Professor Lodge has crossed the water and attended the joint meeting of the Iron and Steel Institute of Great Britain and the American Institute of Mining Engineers. He reports an extremely interesting and profitable meeting.

Professor Richards has made a professional visit to Virginia to help in the concentration of pyrite and one to Colorado to help in the concentration of tungsten; also one to Missouri to help in the concentration of lead. In Denver and Chicago he made arrangements in regard to the manufacture of some of his designs.

CHEMISTRY AND CHEMICAL ENGINEERING

In June last the department received an interesting proposition from Harrison Brothers & Co., Inc., of Philadelphia, concerning a contemplated summer course in practical chemistry which they were about to inaugurate. The course may be briefly outlined as follows:—

Digitized by Google

Students who have completed two years of work in certain selected institutions will be admitted to their well-equipped laboratories for a period of about six weeks for the first summer, and will be employed in the analytical laboratory during that time, the work assigned to them to depend upon demonstrated ability. In the second summer the student will be given advanced work in both organic and inorganic analysis, and, if sufficiently proficient, research work along analytical or technical lines. During the third summer the student will be assigned to special research work in analytical methods and the development of industrial processes, and students of marked ability be given a working place in the industrial laboratory of the company.

The laboratory courses are accompanied by occasional illustrated talks on chemical and allied manufacturing processes, on chemical engineering, and a possible optional course in a modern language.

Students who complete satisfactorily the full course will receive diplomas certifying to their proficiency in the field of applied chemistry. They receive during the first-year course remuneration for their services which will nearly cover living expenses, and a somewhat larger sum may be paid in the two later years. While the company does not in any way guarantee employment to the young man participating in this instructional course, it is probable that the training thus offered will cause these men to be sought for technical positions.

The department was asked to nominate a suitable man to take part in this work, and Howard E. Batsford, of the second year of the course in chemical engineering was named. He has availed himself of the opportunity, and reports that the course has proved to be successful and profitable. It is expected that other students will be nominated from the Institute in succeeding years if the plan prospers.

The extensive plant of the Harrison Brothers & Co. affords a most unusual opportunity for such a "practicum" as this, and one which should be of great value to any earnest, intelligent fellow. The offer on the part of the company is a liberal one, and deserves the hearty appreciation of those charged with the education of the young chemists of the country.

Digitized by Google

Of the members of the Faculty in this department, only Professor Moore spent the summer abroad. Professors Talbot, Noyes, Walker, and Pope were in or near Boston during a considerable portion of the summer. Professor Talbot attended the meetings of the American Chemical Society and the Society for the Promotion of Engineering Education at Ithaca in June and July, and spent some time in the Adirondacks. Dr. Noyes cruised for six weeks along the Maine coast in July and August, and Dr. Walker and Professor Pope spent a month or more in Maine. Dr. Gill was at his summer home at Randolph, N.H., Dr. Fay at his home in Pennsylvania, and Dr. Thorp made an extended visit to his former home in Illinois, also visiting a number of chemical works. Professor Bardwell divided his vacation between Maine and Minnesota. Dr. Mulliken has been occupying a technical position as expert chemist during the vacation months.

Mr. G. W. Rolfe has recently returned from Porto Rico, and reports a successful but rather exacting season. He has spent a short time at Cottage City recuperating before the opening of the year.

RESEARCH LABORATORY OF PHYSICAL CHEMISTRY

The Research Laboratory of Physical Chemistry has opened with a staff consisting of seven Research Associates and four Research Assistants. The new members of the staff are Herbert T. Kalmus, M. I. T. '04, Ph.D. (Zürich), Ledyard W. Sargent, A.M. (Harvard), E. B. Spear, A.B., Manitoba, and Fred C. Mabee, A.M. (McMaster University). In addition, researches are being pursued in the laboratory by five candidates for the degree of Doctor of Philosophy and one candidate for that of Master of Science. All members of last year's staff remain.

To one of the research workers, Mr. Richard C. Tolman, a grant of three hundred dollars has been made during the summer from the C. M. Warren Fund of the American Academy of Arts and Sciences, to enable him to construct what will probably be the most powerful centrifugal machine ever made for experimental purposes, to be used in connection with an investigation of the

Digitized by Google

electromotive force produced at the two ends of a rapidly rotating solution of any ionized substance. A grant of $300 from the Rumford Fund of the American Academy has also been made to Professor A. A. Noyes, which is to be used for the construction of a calorimeter adapted to direct thermochemical measurement with solutions up to 100°.

A gift has just been made to the laboratory of a large diamond, valued at three hundred and fifty dollars, by the Ansonia Brass and Copper Company. This is to be used in insulating the electrode within the bomb used in the conductivity investigations at high temperatures, and will entirely eliminate the error due to contamination which has been involved in the previous work where it was necessary to use quartz insulators.

During the summer a sixty-cell storage battery, furnishing 120 volts, has been installed in the laboratory for the purpose of furnishing a constant electromotive force for experimental purposes and of providing night power during the summer.

A series of twelve articles on the electrical conductivity of aqueous solutions, describing the investigations on this subject made during the last three years in the laboratory, is in process of publication by the Carnegie Institution at Washington.

A large part of a revised scheme of qualitative analysis for the common elements, which has been worked out during the past year by Professor A. A. Noyes and Dr. W. C. Bray, has just appeared in the September number of the *Technology Quarterly*.

ELECTRICAL ENGINEERING

As noted elsewhere in the REVIEW, Professor Dugald C. Jackson, of the University of Wisconsin, has been appointed head of the department. Professor Jackson enters upon his work officially at the end of the first term, but will keep in touch with the department from the beginning of the year by frequent visits.

Another change is made in this department by the appointment of Professor George C. Shaad as Assistant Professor of Electrical Engineering in place of Professor Puffer, who has resigned. Pro-

Digitized by Google

fessor Shaad comes to the Institute from the University of Wisconsin. He has spent a considerable time at the Schenectady works of the General Electric Company, and comes to the work of the Institute with a wide experience both in practical applications of his profession and in the work of the teacher as well.

GEOLOGY

Assistant Professor D. W. Johnson has been called to Harvard as assistant professor of physical geography. He will there have charge of the elementary instruction in that subject. He will continue in 1906–07 to teach topographical geology at the Institute, but will relinquish to Dr. Shimer the structural geology of the second term.

Professor Johnson, accompanied by Dr. Shimer and others, has made this summer an extended wagon-trip through Arizona, Nevada, Utah, and Idaho.

Mr. Gerald F. Loughlin, a graduate of the department, and Ph.D. Yale, '06, has been appointed instructor in geology for 1906–07 at the Institute. He will teach petrography, and have part of other courses.

Mr. W. G. de Steigner (M. I. T. III.$_8$ '06) has been appointed assistant in geology for 1906–07, to succeed Mr. A. K. Adams, who has joined the United States Geological Survey. Mr. Adams is assistant to Mr. J. S. Diller in Oregon. He is now Professor of Geology in the University of New Mexico.

Professor Crosby is in Alaska, and Professors Warren and Jaggar remained in Massachusetts for most of the summer.

The department has received a reflecting projection apparatus as part of a valuable gift from the Hon. George G. Crocker and other Boston gentlemen. This apparatus will be used to show rock surfaces and other opaque objects to classes.

MATHEMATICS

Readers of the REVIEW will regret to learn that Professor Osborne has found his health unequal this fall to the resumption of his

Digitized by Google

teaching work. It is hoped that he will be able to resume it, however, during the year. Professor Wells has also been granted leave of absence for the year on account of ill-health; and Professor Bartlett has this fall been relieved of about half of his teaching, in order to enable him to accept his recent appointment as acting Secretary of the Institute. It has not yet been possible to make new appointments, and the work of the department will be carried by the remaining members, at any rate during the present term, though not without some overburdening of teachers and overcrowding of sections.

Dr. William H. Roever was married in June to Miss Hamilton, of St. Louis, Mo. Mr. Ernest A. Miller, after two years of graduate study, returns as instructor in mathematics, while Mr. W. E. McDonald, an instructor last year, is now a graduate student at Harvard University.

Digitized by Google

THE UNDERGRADUATES

OPENING OF THE COLLEGE YEAR

OFFICIAL WELCOME

President Pritchett, following the custom, met the Freshmen of the incoming class at one o'clock, September 26, in Huntington Hall. After a welcome to the Institute, to the fellowship of its professors and teachers, President Pritchett alluded to the various Technology interests, such as the Tech Union, the class organizations, and the athletic field. The present class is almost exactly the size of last year's class, from all States of the Union and from all parts of the world. There are two sets of students sent officially by their respective governments, one coming from China and the other from the Argentine Republic.

Y. M. C. A. RECEPTION

The Freshman Class met for the first time socially September 28 at the reception given to them by the Young Men's Christian Association. Speeches of welcome were given, refreshments were served, and everything possible was done to make the new-comers feel at home.

DINNER TO FRESHMEN

The first Freshman dinner of the year was held September 29 at the Tech Union under the auspices of the *Tech*. There were 143 present.

E. E. Whitney was toastmaster. Dean Burton spoke first, and gave to 1910 the welcome of the Faculty. Alexander Macomber, the first speaker, gave a short history of the show, and appealed to the men to come out. Phelps N. Swett spoke shortly on the musical organizations. The new head of Course VI., Professor Dugald C. Jackson, was then introduced, and welcomed heartily. Harry A.

Digitized by Google

Rapelye gave a few words on the *Technique*. He told of the uniqueness of the publication and its high standard among college annuals. The Bursar then told a few of his inimitable stories, which were relished by the hearers, as they always are. John S. Tobin, '06, gave the Freshmen a talking to about the poor showing they made at their first football practice. He made a strong appeal for the track team.

TECHNOLOGY Y. M. C. A.

The Y. M. C. A. held the first meeting of the year October 4, in the Parish Hall of Trinity Church. Dr. Mann addressed the men for a moment, and welcomed them to Trinity Church. He said that the first baccalaureate sermon Tech ever had was preached in Trinity Church by the famous Phillips Brooks. Since then all but one have been delivered there, and this one omission was due to some repairs that were being made on the church. He expressed a hope that the men of Tech would not wait until they graduated, however, to see the inside of the building.

Mr. T. C. Keeling then introduced the Rev. A. P. Fitch, pastor of the Mt. Vernon Church, who talked on three great habits of life, —hard work, continual service, and reverence.

ATHLETICS

CLASSES AT THE GYMNASIUM

The gymnastic work offered by the Institute is given by Mr. Towne in the gymnasium. The work will begin on the Monday following the Fall Meet, and will consist of exercises with the dumbbells, Indian clubs, parallel bars, the horse, rings, and other usual apparatus.

FIELD DAY

This year, contrary to the usual custom, Field Day will be held on Friday instead of on Saturday. The date set is Friday, November 16.

Digitized by Google

TENNIS ASSOCIATION

The Technology Tennis Association held its first meeting September 28. Ex-President J. I. B. Larned called the meeting to order, and acted as chairman. The election of officers for the ensuing year resulted as follows: P. R. Fanning, president; J. S. Nicholl, vice-president; and C. W. Coffin, manager.

The Harvard courts at Jarvis Field may be used by Tech students this year, the charge for playing being twenty cents an hour. There are also two tennis courts at Tech Field in Brookline.

HARE AND HOUNDS

The first Hare and Hounds run of the season was held September 29 at Hyde Park. Thirty men entered. Munroe Ames, '08, has been appointed chase captain in place of Hunter, '08, who has left the Institute.

NOTES

Beginning October 2, the General Library will be open until ten o'clock in the evening, except on holidays and Saturdays.

TECH CHAMBERS

Several important changes have been made in the Tech Chambers during the last summer that are designed to add to the attractiveness of the place for Technology students. Another story has been added to the building, the whole dining-room has been remodelled, and four bowling alleys have been installed in the basement.

CATHOLIC CLUB

The Tech Catholic Club held its first meeting of the year at the Union October 3.

It was voted to have the meetings held every third Wednesday night at eight o'clock at the Union. The present officers of the club

Digitized by Google

Digitized by Google

DRINKING FOUNTAIN PRESENTED TO THE INSTITUTE
BY THE CLASS OF
1906

Digitized by Google

are: president, A. Pope, '07; vice-president, J. H. White, '08; secretary and treasurer, G. J. McTigue, '08.

CHESS CLUB

The Chess Club held its first meeting of the season October 4. The motion to again enter the Metropolitan League was unanimously carried. The voting for new officers resulted as follows: president, S. F. Nelson, '08; vice-president and manager, F. W. Morrill, '07; secretary and treasurer, S. F. Barnett, '08.

THE 1906 DRINKING FOUNTAIN

The drinking fountain presented to the Institute last June by 1906, has been installed in Rogers Corridor.

The design of the fountain is by Wrinkle, '06. It was executed in Knoxville pink marble by Messrs. Bowker, Torrey & Co. of Boston. Professor Sedgwick's patented drinking faucets were furnished by the John R. Mott Iron Works; and J. F. Banlon, of Boylston Street, installed the whole.

Digitized by Google

THE GRADUATES

M. I. T. ALUMNI ASSOCIATION

Permanent Office in the Rogers Building

Through the cordial co-operation of the Institute authorities and the Income Fund Committee, the Alumni Association has been able to open a permanent office at Room 37, on the third floor of the Rogers Building. A clerk will be in the office throughout the business day.

The work of this new office will include the care of the Alumni Association records, the collection of dues, the handling of the alumni vote for term members of the Corporation, and the details of any other work the Association now carries on or may take up later.

In addition the office will continue to undertake the work of the Income Fund Committee, including the collection of annual subscriptions; and it will assume also some work in connection with the administrative department of the Institute, especially the preparation and revision of the lists of past students.

The office will endeavor to keep up a correct catalogue of the addresses of all past students, whether graduates or non-graduates, which will be at the disposal of class secretaries and other Institute men desiring such information. Moreover, the office will undertake whatever Institute work any class secretary, other class officer, or any Technology body, may wish to have done, charging for it only the actual cost of the work. This is especially called to the attention of all past students of the alumni; and they are urged not only to avail themselves of the facilities of the office, but also to assist this work by keeping the office informed of changes of address of themselves and of other Institute men regarding whom they possess information. It is particularly desired that help should be given in perfecting the list of addresses of non-

Digitized by Google

graduates, which, necessarily, is more imperfect than is the list of the graduates.

Address, Alumni Association Office, Room 37, Rogers Building, Massachusetts Institute of Technology. (Telephone, Back Bay 2180.)

THE NORTH-WESTERN ASSOCIATION

Due to the fact that so many members of the Association have been absent from the city on account of vacations and business, it has been impossible to hold any meetings. Arrangements are afoot now for the annual fall meeting, which will be informal and with a simple program, our aim being to bring the men together for a general good time.

A club room or home for the Association is the important issue at the present time, but the diversified interests of our members make it very hard to get action on the proposition. Such headquarters should be centrally located, accessible to all, comfortably furnished, and made as attractive as possible. Our ability to maintain such a home is the vital point, and, I regret to say, it is rather doubtful, the advantages presented being few, due to the fact that our members are so scattered. Our aim at present is to draw the men together by meetings or gatherings of one kind or another, and in this way to strengthen the bond, thus enabling us to carry to completion any scheme that may present itself.

The Membership Cards, which extend to holders the privileges of other alumni societies, is a very worthy idea, and we hope the results will be beneficial in a business way as well as socially.

The announcement that our worthy president, E. H. Huxley, '95, has just joined the Benedicks, being married to Miss Josephine Eugenie Pittman on September 27, was received with great pleasure.

JOHN T. CHENEY, '03, *Secretary*,
878 South Halsted Street, Chicago.

Digitized by Google

ROCKY MOUNTAIN TECHNOLOGY CLUB.

Professor Richards, of the Mining Department, was in this city recently on business. Several of us spent a very delightful evening with him. He came freshly laden with Tech news and enthusiasm, which we greedily absorbed. He also showed us several of his own photographs of tree development in spring-time and of landscapes in New England, which were exceedingly interesting and beautiful.

While here, Professor Richards arranged with the Denver Engineering Works (F. E. Shepard, '87) for the manufacture of the Hindred Settling Classifier and Pulsator. His visit with us was not long enough for our full satisfaction, as much of his time was spent in an expert trip to Boulder County.

The Denver Engineering Works has just installed a large steam turbine pumping plant for the Denver Union Water Company, and a large steam hoist for the Victor Fuel Company, while a mill at the Gold Prince Mining Company at Silverton, Col., is rapidly nearing completion under their direction.

H. O. Bosworth, '02, *Secretary*,
1742 Champa Street, Denver, Col.

THE CONNECTICUT VALLEY ASSOCIATION OF THE M. I. T.

Correction. The meeting of May 5 was the annual meeting of the Connecticut Valley Association, and was held at the Hartford Club under the auspices of the Hartford Technology Club. The committee that was chosen was for the Connecticut Valley Association, and not for the Hartford Technology Club, as the report in the July number of the Review implied.

THE TECHNOLOGY CLUB OF NEW YORK

Our plans for the coming season include a series of Smokers, which consist of dinners and entertainments of various kinds.

Digitized by Google

We are pleased to state that during the past year our house has been full to overflowing.

Our membership is now nearly three hundred, and is increasing every month.

ALLSTON SARGENT, '98, *Secretary*,
36 East 28th Street, New York, N.Y.

MAY 28, 1906.

TO THE SECRETARY OF THE CLASS, '06.

Dear Sir,—The Technology Club of New York extends an invitation to any member of your class who may be in New York on Saturday, Oct. 20, 1906, to a Smoker and Reception to be given in honor of the class of '06 at 8.30 P.M.

TECHNOLOGY CLUB OF RHODE ISLAND

There is nothing of moment to report for the Technology Club of Rhode Island.

The only good thing to tell you is that at the last annual meeting Mr. J. O. Ames, '93, whose address is 47 Charles Street, Providence, R.I., was elected secretary-treasurer of the club, to succeed the writer. I have no doubt he will prove a better contributor to your work than the former incumbent of the office.

Other than the above, there were no changes in the officers of the club, which at present are: Fred. H. Howland, '93, president, Providence; Kenneth F. Wood, '94, vice-president, Pawtucket; secretary-treasurer as above; and these, with Professor Eleazer B. Homer, '85, and James G. Woolworth, '79, constitute the Executive Committee.

L. W. BALLOU, *ex-Secretary*,
17 Harris Avenue, Woonsocket, R.I.

TECHNOLOGY CLUB OF NEW BEDFORD.

There is a dearth of news concerning the Technology Club of New Bedford, as no meetings have been held since late in the spring,

Digitized by Google

and the members have been scattered on their summer vacations and duties.

Messrs. Allen, Akin, Hammond, and Ed. Wing have spent a great deal of the summer cruising about the bay and beyond. Stetson has just been appointed second lieutenant of the Naval Brigade. Whiton has had the pleasure of seeing the new steamer "Gosnold," which he had a hand in designing, operated this summer successfully. He is to deliver a lecture before Course XIII. men at Tech this fall.

The next meeting of the club will be held the first Thursday in November, when we hope to find new members who have taken up their residence in New Bedford since spring.

C. F. WING, JR., '99, *Secretary*,
34 Purchase Street, New Bedford, Mass.

TECHNOLOGY CLUB

On October 8, the Club held its annual meeting. After the business meeting Dr. Horace N. Allen, former United States minister plenipotentiary to Korea, gave a very interesting talk on that country.

Dr. Allen first went to Korea as medical missionary. He was appointed, after a number of years' residence, to the secretaryship of the legation at Seoul. He was advanced to the position of consul, and later raised, in McKinley's administration, to be minister plenipotentiary. He returned to this country last spring to remain. He brought with him the best single collection of Korean glazed pottery in existence.

The secretary's report contained interesting information in regard to the present membership of the club. The number of members now in good standing is 602, divided as follows: Corporation, 23; Instructing Staff, 69; graduates and former students, 478; undergraduates, 32.

The officers elected were: president, James Flack Norris; vice-president, Francis Henry Williams, '73; secretary, Angelo Tilton

Digitized by Google

Heywood, '06; treasurer, Augustus Herman Gill, '84; to the governing council for three years, Arthur Tisdale Bradlee, '88, Howard Lincoln Coburn, '87, Andrew Daniel Fuller, '95, William Elton Mott, '89, Walter Elbridge Piper, '94.

NOTE

Of the candidates taking examinations of June, 1906, for Assistant Engineers, Board of Water Supply, 150 passed, and out of the six taking highest rank five are Tech men, as follows: (1) Alfred C. Lootz, '96; (2) Russell Suter, '00; (4) James E. Barlow, '05; (5) Howard E. Smith, '96; (6) William W. Cronin, '04.

Digitized by Google

NEWS FROM THE CLASSES

1868.

PROF. ROBERT H. RICHARDS, *Sec.*, Mass. Inst. of Technology, Boston.

Hon. Eben S. Stevens has been appointed as a term member of the Corporation of the Institute of Technology.—Robert H. Richards has made a trip to Minnesota, Michigan, and Ontario with a summer school of mining students, and has also visited professionally Virginia, Colorado, and Missouri, and has made arrangements in Denver and Chicago for the manufacture of some of his designs.

1874.

CHARLES F. READ, *Sec.*, Old State House, Boston.

George B. Elliot has recently built a summer residence on the Fitzwilliam Hills, near Mt. Monadnock, New Hampshire.—Benjamin L. Crosby is at present the principal assistant engineer of the Vancouver Bridge, Vancouver, Wash.—Charles F. Read, the secretary of the Class Association, returned on July 2 from a seven weeks' transcontinental trip, in which he was accompanied by his wife. They travelled more than nine thousand miles, visiting many of the leading cities and natural wonders of the country. The secretary of the Class Association has recently issued the annual class directory. As there are naturally changes every year in addresses of members, the directory is of great service to members, especially if they remove to new localities.—The secretary, when in California lately, called upon Herbert B. Perkins, who is professor of mathematics in the Throop Polytechnic Institute, Pasadena. Professor Perkins sent by the secretary his remembrances to his class-mates of '74, whom he has not seen for many years.—Upon the invitation of the president,

Digitized by Google

George H. Barrus, a quarterly lunch of the Association was held at the Boston Club on Monday, September 24. The following members were present: Messrs. Arnott, Barrus, Blunt, E. L. Brown, S. J. Brown, Chase, G. T. Elliot, Mansfield, Nickerson, Read, Robinson, Russ, and Warren.

1882.

WALTER B. SNOW, *Sec.*, 29 Russell Avenue, Watertown, Mass.

James W. Johnson has been heard from at 912 Westlake Avenue, Los Angeles, Cal.—The class of '82 is represented in "Who's Who in America" by George L. Heins, James P. Munroe, and Walter B. Snow.—Heins and Zimmerman (who was once connected with the class) are both State architects, the former of New York, and the latter of Illinois.

1883.

HARVEY S. CHASE, *Sec.*, 27 State Street, Boston, Mass.

On Aug. 16, 1906, George H. Gustin died at the private hospital of Dr. D. T. Millspaugh at Paterson, N.J. Gustin was attacked with paresis, showing premonitory symptoms in the spring of 1905. In July the disease had become so acute that he was placed in an asylum at Morris Plains, N.J., and later removed to a sanatorium at Noroton, Conn. The expense attending his illness, together with previous serious sickness in his family, cut into his savings to such an extent that his classmates and friends were permitted to express their sorrow and sympathy in a practical manner by providing the funds necessary to make him as comfortable as possible in the midst of these misfortunes, and to assist his family. It will be a gratification to all those who contributed to this fund to know that their generosity has somewhat lightened the burdens of his devoted wife, and saved for her and his three children insurance which otherwise might have been sacrificed. Even as it now stands, the mother and children are left with insufficient means, and without immediate rela-

Digitized by Google

tives in position to care for them. The fund previously raised was expended, together with $430.87 additional, which the trustees hope will now be contributed by the same good friends and others. If each man who reads this will attempt to realize the situation, and appreciate what some similar misfortune might mean in his own case, he will be inclined to do what he can to render the conditions less onerous for Gustin's wife and family. Please communicate with the secretary of '83 or with Mr. W. E. Wadman, Elizabethport, N.J. Twenty dollars from each of twenty-five friends would be tokens of appreciative sympathy and of true desire to aid even at some personal inconvenience.

1884.

Prof. William L. Puffer, *Sec.*, Mass. Inst. of Technology, Boston.

Mr. C. S. Robinson has made a change in his business according to a report from the Tech Fund Committee, and is now to be reached at The Youngstown Sheet & Tube Co., Youngstown, Ohio, in place of his old location at Pueblo, Col.—Lieutenant Colonel Lyle spent a week or more in Boston during August as a member of a meeting of United States life-saving experts. The secretary regrets that he has not found anybody who saw him, and, consequently cannot give any news from him.—The Ouray *Herald* of July 20 gave a great account of a new mining tunnel which is in process of construction under the charge of W. H. Bunce. The *Herald* is greatly pleased that Bunce has returned after a number of years' absence, during which time he has been in Nicaragua and British Columbia.—Last May, Gill took a two weeks' trip West with the idea of seeing what has been done in a number of the Western institutions along the lines of technical analysis, gas analysis, and technical chemistry; also various new laboratories were inspected. The places visited were the Case School of Applied Science at Cleveland, where a fine new chemical and metallurgical laboratory is being erected, the Ohio State University, which has also just built a new chemical laboratory, Purdue University, which is about to build a new laboratory

Digitized by Google

next year, ground being already broken. From here a large new laboratory of the University of Illinois was seen, and the excellent laboratory of the University of Chicago, which in many ways was the best laboratory seen. The Armour Institute was visited, particularly the fire underwriters' laboratory, which is used in connection with the Institute in their course of insurance engineering. Thence an excursion was made to the University of Wisconsin at Madison, which is the most beautifully situated of any of the State Universities. It is also rejoicing in a new chemical laboratory. The route home lay through Milwaukee, where Dr. Levi, formerly an instructor at the M. I. T., of the Pfister & Vogel Leather Company, was visited, and the extensive tanneries of the latter firm inspected. A call was made on Professor Bigelow (M. I. T. '95) at the University of Michigan, who with others is making plans for a $250,000 laboratory, and a stop-over was made at Buffalo at the extensive plant of the Lackawanna Steel Company, which was seen with Mr. F. C. Baker (II. '94) as guide. Besides this steel company the plant of the American Steel and Wire Company at Cleveland was visited. The trip was a very interesting, instructive, and profitable one, and much was seen and learned which will be of use in his work at the Institute.

1885.

I. W. LITCHFIELD, *Sec.*, 161 Devonshire Street, Boston.

"Tracy Lyon, whose resignation as assistant general manager of the Chicago Great Western Railway to accept a position with the Westinghouse Electric and Manufacturing Company was noted lately, is forty-one years of age, having been born at Oswego, N.Y., in 1865. He is a graduate of the Massachusetts Institute of Technology, and prior to entering railway service in 1894 was a member of the firm of Robert Bement & Co., engineers and contractors of St. Paul, Minn. Mr. Lyon held the position of master mechanic of the Chicago Great Western from 1894 until July, 1899, when he was appointed general superintendent of the same road. He continued in that position until March, 1902, at which time he was

Digitized by Google

appointed assistant-general manager. He is a member of the American Society of Mechanical Engineers."

1887.

EDWARD G. THOMAS, 4 State Street, Boston, Mass.

William H. Brainerd was married to Miss Mary Bowen, of Centreville, Ohio, on Sept. 22, 1906.—Stoddard has been appointed superintendent of the new mill of the Plymouth Cordage Company at Welland, Ontario. He expects the mill to start next month. —Gelett Burgess has become an associate editor on the staff of Ridgways, publishers of *Everybody's Magazine*, and will be henceforth at 31 East 17th Street, New York. He is to direct a department comprising all the lighter features, humor, poetry, etc., of the new weekly paper which Ridgways is shortly to publish. This paper is to be published simultaneously in fourteen cities, each city having its own staff and its own eight pages of local news and comment. Editorial news of general character is to be telegraphed at the last minute. Burgess's novel, "The White Cat," which appeared in a recent *Smart Set*, will be printed in book form in the spring by the Bobbs-Merrill Co., and his "Sulphate Theory," or "Are you a Bromide?" is to come out as a little book in October, printed by B. W. Huebsch in New York.—Solomon Sturges was very badly injured in an automobile accident in Evanston, Ill., on September 15. He was in the touring car of Mr. James O. Hayworth, and a newspaper report states it was being driven very rapidly, in the early evening, without lights, and ran into the side of a touring car driven by Mr. J. F. Kahlwegan. All parties in both cars were hurled to the ground, and Mr. Sturges and Mr. Hayworth were both rendered unconscious. Mr. Hayworth was not badly injured, and is on the road to recovery; but Mr. Sturges apparently struck upon his head, and probably fractured his skull, besides receiving serious other injuries. At the time of writing, October 15, Mr. Sturges is reported to be physically improving; but the outcome of the injury to his head is yet problematical, as

Digitized by Google

his condition has been such as to render it impossible to investigate the wound thoroughly.

1888.

WILLIAM G. SNOW, *Sec.*, 1108 Penn Mutual Building, Boston, Mass.

Sam Wheeler, superintendent of Water Works, Ashland, Wis., spent the summer with his family at his old home in Concord, Mass.—William G. Snow attended the summer meeting of the American Society of Heating and Ventilating Engineers held in Chicago in July, and read a paper on Feed Water Heaters.—Harry C. Moore is with the firm of Clinton & Russell, architectual engineers, 32 Broad Street, New York, N.Y.—Clarence B. Vorce is in for himself as a consulting engineer, making a specialty of bridges. He is located at 15 William Street, New York, N.Y.—G. U. G. Holman has returned from Canada, and is located on the twenty-first floor of the Land Title Building, Philadelphia, with an office also at 180 Broadway, New York City. He is vice-president of the Public Service Investments Company, which is a holding company for five railroads and four railways, Pennsylvania corporations, which are engaged in constructing a standard railroad operated by electricity between Philadelphia and Phœnixville, Pa. He is also president of the Denbeigh Construction Company, which has assumed the contract for this construction.

1889.

PROF. W. E. MOTT, *Sec.*, Mass. Inst. of Technology, Boston.

The Committee on Publication reminds us that "the comparative leisure and the journeying of Institute men" should put us in possession of many news items. That '89 men have reached a point in their careers when "comparative leisure" is possible may be shown by the many positions of responsibility which they

Digitized by Google

hold. At any rate, they have all taken to the woods at this season of the year, and do not show any disposition to give up the secrets of their favorite haunts.—At one of the last meetings of the M. I. T. Civil Engineering Society for the year 1905–06 W. M. Beaman, of the United States Geological Survey, explained the theory and method of application of a device which he has recently invented. It consists essentially of such a modification of the vertical arc of the ordinary engineer's transit that both the field and office work involved in stadia surveys are much simplified, and the danger of error in reading small plus or minus angles is largely eliminated. The mechanical side of the problem is being worked out with the co-operation of Messrs. Gurley, of Troy, N.Y.—The July number of the REVIEW contained a reference to work which Kilham & Hopkins have been doing for ex-President Cleveland at Tamworth, N.H. In a recently published pamphlet from the office of the Secretary of Agriculture, Concord, N.H., entitled "New Hampshire Farms for Summer Homes," may be found excellent illustrations of Kilham's work at Tamworth, as well as a sketch of a bungalow, by the same firm, for Dr. John H. Finley, president of the College of the City of New York. Mr. Kilham has himself become one of a group of summer residents in Tamworth, which Mark Twain refers to as "Outliars," and "The Clearing" is thus described:—

For twenty years this sequestered farm lay hidden at the end of a long wooded lane. Its very remoteness had caused its abandonment by its last occupant. It was forgotten by all but the stray cows that sought shelter from the rain under the tottering roof, and the young saplings that took root under its walls grew to splendid trees before the future owner, in the course of a chance snowshoeing expedition, happened upon the little cabin and saw its latent possibilities.

The great hand-hewn beams and weather-beaten interior were an effective beginning for a picturesque living-room, which by the removal of the second floor was made to extend to the century-old rafters.

The fallen chimney was rebuilt and the great fireplace restored, and a photograph of an old English cottage interior gave the motif for the inglenook and the two huge settles on either side of the fireplace. The old

Digitized by Google

kitchen had been removed to furnish materials for a sugar house, so a rambling addition was put on to supply its place.

A judicious trimming of the undergrowth and superfluous trees revealed a superb view of the entire Sandwich range, where only Chocorua was visible before, while from the lattice porch a very little cutting disclosed a twenty-mile reach of the Ossipee valley, which bursts upon the visitor as he emerges from the half-mile wooded lane which leads in from the highway.

A patch of poppies and old-fashioned flowers by the sunny doorway gives a note of color to "The Clearing" that in former times was given by the cinnamon rose bushes that still bloom under the south windows and form a pleasant link with the life of the past. Thus, at a trifling outlay, an abandoned ruin in a useless pasture has been changed into a comfortable and attractive summer home, which is a source, not only of health and pleasure, but produces garden stuffs and maple syrup sufficient for its numerous family of occupants.

—Whipple, busier than ever with his consulting work, has recently returned from a trip abroad, taken in the interests of the city of Paterson, N.J., in order to study first hand the newest methods of sewage disposal. The following articles—"The Advance in Sewage Disposal," "The Use of Disinfectants as a Means of Purifying Water," and "The Value of Pure Water, a Financial Study of the Subject," etc.—furnish abundant evidence that Whipple is in the forefront when sanitary matters are under discussion. His book, "The Microscopy of Drinking Waters," is being translated into the French, and is no doubt destined to become a standard work on both sides of the water. As Consulting Professor of Sanitary and Industrial Water Supply, at the Polytechnic Institute of Brooklyn, Whipple will this winter give a course of lectures on Water Supply and Sewage Disposal.—Hollis French spent two months abroad this spring, partly on pleasure and partly on business. The firm of French & Hubbard is at present engaged upon ventilating, heating, and electrical problems in connection with the new Boston Art Museum, the Franklin Union Building, and the First National Bank. A new steam turbine generating station and a sub-station at Fall River are well under way, and the Sewall's Falls Plant, where an unusual hydraulic turbine equip-

Digitized by Google

ment was installed, is nearly ready for testing.—The family of our former classmate R. L. Russel have recently given the sum of two thousand dollars, the interest of which is to be awarded as a prize to a student of high standing in the fourth year civil engineering class. It is likely that the terms of the gift may be so worded that it will become a fellowship to be given every third year instead of yearly.—Professor Thorp, as in former years, directed the two weeks' trip of the students in the Summer Course in Industrial Chemistry.

1890.

GEORGE L. GILMORE, *Sec.*, Lexington, Mass.

William Parker Flint and Mrs. Arabella Horton Jackson were married July 9 at Westerleigh, Staten Island, N.Y.—C. W. Rice's address is now American Society of Mechanical Engineers, 12 West 31st Street, New York, N.Y. The following is from the *Electrical Review* for July 7, 1906:—

Calvin W. Rice has accepted the position of secretary of the American Society of Mechanical Engineers, which was offered him by a vote of the council some time ago, and entered the service of the society on July 1.

After graduation he entered the employ of the General Electric Company, working up to the position of assistant engineer of the power and mining department, which he retained until 1895, when he was appointed local engineer at Cincinnati, Ohio, for the General Electric Company. In 1895 and 1896 he was electrical superintendent of the Silver Lake Mines, Silverton, Col., and later was connected with the Anaconda Copper Mining Company. In 1898 he was electrical engineer of the Kings County Electric Light and Power Company, Brooklyn, N.Y., and soon after became electrical engineer of the Consolidated Telegraph and Electrical Subway Company, owning and operating the high-tension subways of New York. He has been chief of the meter and testing department of the New York Edison Company, and second vice-president and sales manager of the Nernst Lamp Company. Since 1904 he has been a consulting engineer with the General Electric Company.

Mr. Rice is a member of the American Institute of Electrical Engineers,

Digitized by Google

the American Society of Mechanical Engineers, the Institution of Electrical Engineers of Great Britain (having been proposed by Lord Kelvin), a member of the American Association for the Advancement of Science, the Society of Colonial Wars, and several other organizations.

Mr. Rice's wide experience in handling large organizations and his keen appreciation of the possibilities of co-operation among the national engineering societies are indeed fortunate in view of the closer relationship which is existing among these organizations at the present time. Mr. Rice, it would seem, enjoys the unique distinction of being the man for the place both by training and by nature, and there is no doubt that he will prove a worthy successor to that faithful and beloved genius, Professor Hutton, who retires after a long and faithful service which will always stand as a monument to his integrity and character.

—Charles H. Alden's address is now Pasadena, Cal.—A. W. Woodman's address is 1111 Hinman Avenue, Evanston, Ill.—W. B. Poland, member American Society of Civil Engineers, who resigned from the Alaska Central Railway on September 1, has been elected vice-president and chief engineer of the Philippine Railway Company. He will sail for Manila about November 1, to take charge of construction and other interests for the syndicate which is building railroads for the islands of Panay, Negros, and Cebu. His address is 43 Exchange Place, New York, N.Y., and Manila, P.I.

1892.

PROF. WILLIAM A. JOHNSTON, *Sec.*, Mass. Inst. of Technology, Boston.

Ambrose Packard, of the firm of J. S. Packard Dredging Company, Providence, R.I., writes:—

I hear from Newkirk and Ober occasionally, but nothing new. Newkirk is mechanical engineer for the Buhl Malleable Company of Detroit, and Ober is junior engineer at United States Engineer Office, Newport, R.I., and is in charge of fortification work in that district.

A trip to Cuba last winter, the arrival of a second son in my household,

Digitized by Google

and the building of a large dredge at Chelsea, Mass., have kept me busy for the last six months.

—W. R. Kendall, of the firm of Weeks & Kendall, consulting engineer, Kansas City, Mo., writes:—

I have been a very busy person for the past two and a half years. . . . Had two estates to look after. . . . Returned from a six weeks' trip through the West, including Seattle, Portland, San Francisco, and Los Angeles. Then had a three weeks' trip in Mexico, in Southern Sonora. Those three weeks were the hardest I ever spent. I had a 208 mile stage ride from Guaymas to Alamos, and then 45 miles on a mule through the mountains. I went for a party to examine some placer gold properties, to see if certain machinery they were interested in would be suitable to operate the properties. I lost about ten pounds during those three weeks, and I was very glad to set foot again on Uncle Sam's soil.

Probably he made up the ten pounds before sending out the following announcement: William Roy Kendall married to Caroline Elizabeth Bing on Wednesday, July 4, 1906, at Mansfield, Ohio.

1893.

FREDERIC H. FAY, *Sec.*, 60 City Hall, Boston.

Frank S. Badger, lately of San Francisco, is located in Mexico, his address being Apartado 291, Monterey, Mex.—Shortly after the announcement of their engagement, John Cotton Clapp, Jr., and Miss Amy Leah Crosby, daughter of Mr. and Mrs. George Edwin Crosby, were married at the Baptist Church, West Medford, Mass., 4th of September. Mr. and Mrs. Clapp will reside at 42 Salcombe Street, Dorchester, Mass.—Herbert N. Dawes has been spending the summer in Europe, and was expected to return early in October. One of his recent letters was from Rome.—The *Harvard Graduates' Magazine*, in its June number, contains a long illustrated description of the mechanical plant of the new Harvard Medical School, by Densmore and Le Clear, who were the engineers for the work. Of his firm, E. D. Densmore, '93, is the senior member.—Emil Lorch,

Digitized by Google

formerly engaged in teaching art at the Drexel Institute, Philadelphia, has recently gone to the University of Michigan. His address is 514 Brush Street, Detroit, Mich.—The address of A. T. Marshall is 81 Andrew Road, Swampscott, Mass.—E. E. Pettee, for many years principal assistant to J. R. Worcester, consulting engineer, Exchange Building, Boston, has recently been admitted to partnership in the new firm of J. R. Worcester & Co., consulting engineers for steel and reinforced concrete structures and foundations. The firm has taken new offices in the Post-office Square Building, 79 Milk Street, Boston.

1894.

PROF. S. C. PRESCOTT, *Sec.*, Mass. Inst. of Technology, Boston.

Among the June weddings was that of H. W. Gardner and Miss Celia Brophy. They spent a portion of the summer at Milton, N.H., where Gardner designed and has just built a very attractive summer cottage.—T. G. Richards has left, or is about to leave, the position he has held as superintendent of the Boston Woven Hose Company at Cambridge, and enters the field as a manufacturer at West Brookfield.—C. G. Whiton has recently designed and superintended the construction of a new boat for the New Bedford, Martha's Vineyard & Nantucket Steamship Company, of which he is the treasurer and general manager.—A son, Darragh DeLancey, Jr., was born to Mr. and Mrs. D. DeLancey on June 18, and about the same time a young daughter blessed the home of Professor and Mrs. B. G. Haven.—After many years in Mexico in mining work, Schiertz has returned to the States, and is now located at the Gould Mines Company, Gould, Mont.—Horton has been appointed engineer of the Department of Health of New York State, with headquarters at Albany.—Patch is still with the United States Irrigation Service, but has been transferred from Belle Fourche to Orman, S.D.—The secretary recently had the pleasure of meeting Duckworth on the train, and passing a pleasant hour with him. In addition to his work as chemist for the Cocheco Company, he has become an enthusiastic farmer and a devotee of horseback

Digitized by Google

riding.—McGoodwin has been recently married. He was in Boston during a portion of the summer, and he spent some time in the Architectural Department of the Institute. He is now located at Pittsburg as instructor in architecture in the new Carnegie Technical School.—McClure spent a portion of the summer along the North Shore.—Piper and Tenney have been to Canada on a fishing trip, and report a good time and excellent sport.—F. S. Hitchcock was in Boston recently, looking for assistants for the New Manual Training High School of New London, Conn., of which he is principal.—Thorndike has terminated his connection as instructor at the Institute, and returns to the engineering department of the city of Boston.—Swanton is engaged in the manufacture of a small engine which he has designed.—McKibben has been promoted to Associate Professor of Civil Engineering.—H. N. Parker has recently been transferred to Lawrence, Kan., for the study of some special hydrographic problems for the United States Geological Survey.

1895.

H. K. Barrows, *Sec.*, 6 Beacon Street, Boston, Mass.

F. W. Harris is now assistant engineer on the New York State Barge Canal with headquarters at Albany, N.Y.—Several '95 men have spent some of their vacation in yacht racing this summer.—W. T. Hall has been at the North Shore; also A. C. Jones with his 22-footer, the "Nutmeg," and Sumner Foster with the "Tyro." F. H. Tillinghast has been busy in a similar way at Marblehead. G. W. Hayden is now at 728 Oliver Building, 141 Milk Street, Boston.—G. H. Matthes reports change of address from Carlsbach, N.M., to Rupert, Ida. He is still engaged upon his duties as engineer in the United States Reclamation Service.—J. T. Dorrance was married to Ethel Mallinckrodt, of Baltimore, Aug. 18, 1906. He is one of the few Ph.D.'s on our class list, and, since returning from Germany in 1897, has been with the Joseph Campbell Company at Camden, N.J., as chemist, and is now treasurer of the company.—Wedding announcements are also at hand at the time of going to

Digitized by Google

press of E. H. Huxley and Miss Josephine Eugenie Pittman at Bonnie View, Boscobel, Wis., on September 27. Mr. and Mrs. Huxley will be at home after November 10, at 1003 Grove Street, Evanston, Ill.—Announcement is also made of the coming wedding of Bertrand Clergue and Miss Margaret Murray Roscoe to take place on October 3 at Horn Hill Court, Chalfont, St. Peter, Bucks. Mr. and Mrs. Clergue will reside at Sault Ste. Marie, Ontario.—J. H. Gregory reports great activity at Columbus, Ohio, on the improved water and sewage works of which he is engineer in charge. He promises to give us a brief description of this important piece of work, and how '95 Tech men are connected with it a little later on.—F. E. Matthes writes the secretary as follows:—

FORT ROSS, SONOMA CO., CAL.,
July 3, 1906.

Believing that my work in connection with the earthquake investigations by the California State Commission may prove of interest to the class, I enclose accompanying account for publication in the TECH REVIEW. Was sorry, by the way, that I was unable to come over for the class reunion.

I have reasons to congratulate myself on the opportunities afforded me lately to study the recent earthquake in all its phases. I was at Berkeley on the day of the calamity, and got the full benefit of the shake, to begin with. Never having experienced an earthquake before, I calmly remained in bed, unalarmed, and let it shake. This must be a fair sample of the famous California earthquakes they all talk about, thought I. Little did I realize then that I was witness to an unparalleled catastrophe, and still the less did I anticipate subsequently to play a part in tracing the origin of the disturbance.

For the past two months—ever since May 1—I have been in the field for the State Earthquake Investigation Commission, gathering data regarding the results of the earthquake, and, above all, tracing out the great "fault" which was the immediate cause of it all. This "fault," as is beginning to be popularly understood now, is a gigantic fracture extending thousands of feet down into the earth's crust, along which a sudden shearing of the rocks has taken place. This particular "fault," which passes within a few miles of San Francisco, but not through it, has a general bearing of N. 30° W., roughly parallel to the west edge of the continental shelf. The movement, or slipping, which produced the jar that threw down San Francisco was a

Digitized by Google

horizontal one, the coast strip west of the fault having apparently moved north past the rest of the continent by an amount of some sixteen feet. These sixteen feet, be it well understood, are not a mere matter of conjecture, but are measurable in hundreds of places. Offsets of that amount in fences crossed by the fault are perhaps among the most conspicuous and convincing evidence of the movement. By them, as well as by the ploughed up appearance of the ground along the fault line, the latter is distinguished from the innumerable cracks and rents in the hillsides which were produced by the quake, and by them it has been traced both to the north and south of San Francisco over an aggregate distance of some two hundred and sixty miles. It is the north half of this line, from Fort Ross, Sonoma County, north, that I feel responsible for.

For more than a month in all I have been knocking around in a rough-and-ready way through the coast ranges of Sonoma, Mendocino, and Humboldt Counties, always in pursuit of the fault. I have not kept count of the mileage, but I am sure it would be an interesting total, some of it made by rail and steamer, but most of it by stage, on horseback, and on "footback,"—in fact, by every available means of conveyance except automobiles, the latter being at a distance in the backwoods of northern California, where the Overland Mail stage ploughs wearily, hub deep, through the mud at a rate of three miles an hour.

To most people it seems as if the earthquake was most violent and destructive in and around San Francisco, but such, most fortunately, was by no means the case. To get a true appreciation of the destructive force of the quake, one must follow the fault itself through the redwood forests where thousands of trees broke off, split a hundred feet from their base up, or were totally uprooted. One must see the enormous landslides, leaving the mountain sides bare and clean swept over thousands of feet in height, and the great masses of jumbled débris, rocks, and trees along their base, advancing like promontories into the ocean. These are things which it is difficult to adequately describe and impossible to conceive of without having actually seen them.

Of the many remarkable sights on these trips I cannot begin to tell you. A few samples must suffice.

A logging railroad in the immediate vicinity of the fault had its track jammed together lengthwise with such violence as to cause the rails to bend sharply out of alignment in a dozen places, the sharpness of the kinks being sufficient to cause the snapping of the fish-plates in one place and the actual rupture of both rails in another.

Digitized by Google

The great wagon bridge over the Gualala River was found in a sad plight. The entire approach on the south bank, some five hundred feet long and originally resting on wooden trestles twenty feet high, was lying flat, an utter wreck; and the south end of the main span, a four hundred foot trussed through bridge, had likewise fallen twenty feet, but its north end was still in place. The river being unfordable, and the main span practically uninjured, if inclined, a roadway was cut through the dense timber of the river bottom alongside of the ruined approach leading to the span, and the latter was daily traversed by the mail stage. Going south, we had to put on the brakes.

Another bridge, the only one I found astride of the fault, had been so completely smashed that it was difficult to make out from the mangled remains in the creek bed what sort of a structure it really had been. Even the tension rods had parted. A large dairy barn near Point Arena was found squarely on the line of the fault. There were twenty cows in it at the time of the quake and a party milking. Somehow they all escaped unhurt, but there was very little barn left.

The trip was not altogether without danger. Walking along the Humboldt coast between precipitous landslides on one side and roaring breakers on the other (there is little or no beach at high tide), I felt a mild afterquake. Instantly every bird flew, and a few seconds later all the landslides for miles along the coast began to slide once more. I was fortunately in a favored spot, but I had to dodge several rocks none the less. They bounded clear across the narrow beach and into the breakers, and running was out of the question. As soon as the bombardment in my vicinity ceased, I managed to photograph the great dust clouds which were whirling up from the larger slides and hung over the mountain sides like fog banks.

At present I am making a detail map of a strip of typical "earthquake topography," as we call it here, along the fault near Fort Ross. For, it must be explained, the recent slip took place along a belt of faulting which has seen much more extensive displacements in the past, many of which are recorded in the topographic features of the country.

In a few days I expect to return to the Yosemite Valley, where I shall spend the summer completing the special map I began last year.

—From time to time '95 men figure in real estate transactions about Boston, the latest noted being the sale of a lot of land on Beacon Street to A. Geiger, Jr., who proposes to build an attractive eight-

Digitized by Google

story building suitable for doctors' apartments.—E. J. Loring has invented the Loring speed gauge for automobiles. This seems to be an accurate and reliable instrument of its kind, and '95 men, at least, have no further excuse for exceeding speed limit laws.—W. S. Rhodes is with the United States Engineer Corps at West Point, N.Y., where extensive improvements are being made.—To make our '95 alumni news column what it should be, we must have a larger number of brief statements about the different men and what they are doing. It is not necessary to spend a day in writing an elaborate article on your work or on class news that may have come to your attention. One or two minutes' thought, and as much time spent in dictation, will provide ample material for such items as we can place in the REVIEW. Send in your remarks in as rough a form as you please. The secretary will be only too glad to spend the time required in editing them for the REVIEW. Remember that your classmates, many of whom are far away and able to attend class reunions but infrequently, are always interested in this column. For the greater part of the class it is the only means we have of keeping in touch with individual and class doings.

1896

EDWARD S. MANSFIELD, *Sec.*, 70 State Street, Boston.

The work on the '96 decennial catalogue is progressing, but not as rapidly as is desired, the delay being due to the delinquency of the men in sending in the data which has been asked for. We have already received replies from about one-third of our number, and we are anxiously waiting for the remainder. Mr. '96 man, if you have not already done so, won't you please send to the secretary this data at once, so that the book may be published during the year of our decennial?—On May 1 F. E. Field was appointed principal division engineer of the Bureau of Filtration at Pittsburg, Pa.—F. E. Foster, of Atlanta, Ga., was married to Miss Ethel Taylor Fisher, of that place, on Aug. 25, 1906. They are to reside in Atlanta.—W. M. Partridge, formerly rector of the First Episcopal

Digitized by Google

Church in Peabody, has accepted a call to the parish in Beverly, Mass.—R. T. Starr was married on June 7, 1906, to Miss Alice G. Proctor. His home address is 16 Montgomery Place, Brooklyn, N.Y.—J. A. McKay is connected with James McKay & Co., manufacturers of chains and forgings at Pittsburg, Pa. His address is 421 Wood Street.—Captain W. H. Clifford, of the United States Marine Corps, is in command of the American Legation Guard at Peking, China.—Norman F. Rutherford reports his changed address as follows: Apartado 62 Saltillo, Coah., Mexico.—A son was born to Mr. and Mrs. J. H. Knight on Friday, September 28, 1906.—M. J. Strum, architect, of Chicago, Ill., writes that he has two candidates in his family for a B.S. at Tech,—one about a year old, and one who arrived this summer. He also writes that he has a book under preparation, together with Albert J. Ochsner, M.D., entitled "The Organization, Construction, and Management of Hospitals." The work is expected about January 1.—C. E. Wentworth has resigned his position as lieutenant in the Corps of Civil Engineers, United States Navy, stationed at Guantanamo, Cuba, to accept the position of chief engineer of the Scofield Company, consulting and constructing engineers of Philadelphia, Pa. His home address is 216 Bloomingdale Avenue, Wayne, Pa.—J. W. Campbell, of the Pennsylvania Steel Company at Steelton, Pa., has just returned from a three months' vacation trip in Europe.

1897.

JOHN A. COLLINS, Jr., *Sec.*, 74 Saunders Street, Lawrence, Mass.

Roger F. Hosford (V.) was married on Tuesday, Sept. 11, 1906, to Miss Lillian Canavan, of Hollis, N.H.—Walter Humphreys was married on Wednesday, July 18, 1906, to Miss Victoire Elizabeth Casgrain, of Evanston, Ill.—A daughter, Mary Erwin, was born in May to Mr. and Mrs. Jay E. Tone, of Des Moines, Ia.—Carroll A. Capen (X.), of Randolph, Mass., is with Mackenzie & Winslow, wholesale grain merchants of Fall River, Mass.

Digitized by Google

1898.

Prof. C.-E. A. Winslow, *Sec.*, Hotel Oxford, Boston.

E. F. Ayres has moved from Augusta, Me., to Rensselaer, N.Y., where he is engaged in work on the New York Barge Canal. His address is 1344 Second Street, Rensselaer, N.Y.—Brewster sends a card from Pinar del Rio, Cuba, in which he announces the birth of a son, William Brewster, Jr., on Sept. 18, 1905.—Bleecker was married July 3, and the following excerpts are taken from the account of the ceremony as published in the Nashville *Banner*:—

A marriage which was one of the notable social events of the year and exceptionally beautiful in all its arrangements was that of Miss Anna Webb Parks and Mr. John Stearns Bleecker, which took place at 7.30 o'clock at the home of the bride's parents, Mr. and Mrs. Hamilton Parks, on West End Avenue. The impressive ceremony, performed by Dr. J. E. Clarke, was witnessed by 150 guests, among whom were a number from a distance, including Mr. Bleecker's parents, Rear-Admiral J. V. B. Bleecker, United States Navy, retired, and Mrs. Bleecker, of Boston.

The Parks home has been in the past the scene of many charming hospitalities, but the wedding last evening was in plan of exceptional beauty. The house was a floral bower, hangings of vines over the doorways, palms and flowers being arranged with perfect taste. In the drawing-room, where the prevailing color note is green, stands of pink gladioli made a pretty color contrast, and elsewhere in the house white blooms were used. The chandeliers were wreathed with feathery asparagus fern, and the stairway down which the bridal party entered was hung with vines, with stalks of gladioli on the newel electrolier. From the end of the stairway white satin ribbons entwined with vines were held by the groomsmen, Messrs. Glenn Parks, Frank Harris, Charles L. Eastman, Harding Jackson, of Nashville, W. I. Sturdevant and Will Webb, of Paducah, Ky., making an aisle for the passage of the bride and her attendants.

The matrons of honor, who entered singly, were the bride's aunt, Mrs. Robert Phillips of Paducah, Ky., and her sister, Mrs. Houston Fall, of El Paso, Tex. Mr. Parks gave his daughter away, and Mr. Bleecker, with his best man, Mr. Avery Robinson, of Louisville, awaited the bride at an altar of palms starred with white lilies, with white satin prayer cushions. This

Digitized by Google

altar was erected at the end of two connecting reception-rooms, decked with lilies, roses, and gladioli, and the bridal tableau was exceedingly beautiful.

Mr. and Mrs. Bleecker left last night for a week's stay in Asheville, N.C., *en route* to Morristown, N.J., to visit the former's relatives and New York. Before returning to Paducah, Ky., where they will reside, August 1, they will visit Admiral and Mrs. Bleecker at their summer home in Jamestown.

—Danforth's marriage, which took place Dec. 21, 1905, has by some oversight not before been recorded in this column.—Winslow's engagement to Miss Anne Fuller Rogers, of Boston, was announced October 6.—Goddard has returned from Mexico, and is with the St. Joseph Lead Company at Herculaneum, Mo. He writes, "Sorry not to be able to come to Boston this year, but I surely will be on hand for any doings in 1908."—C. W. Wilder has changed his address from 91 Pineapple Street to 218 Sixth Avenue, both of Brooklyn.—Hurter left Oregon in April, and spent the spring with the Esperanza Mines Company at San Diego, Cal.—Snelling annouuced his engagement to Miss Eleanor G. Goodwin, of Concord, Mass., in September.—Pratt came East in September for the convention of the New England Water Works Association. He was happy over the birth of a son on August 13.—Monteith has crossed the continent, and is now with the Lewiston, Clarkston Company at Clarkston, Wash.—Treat was married at Livermore Falls, Me., on July 18, to Miss Elsie Mabel Reynolds, daughter of Dr. Henry Reynolds.—Godfrey had a review of modern progress in municipal engineering, under the title "City Water and City Waste," in the September number of the *Atlantic Monthly*.—F. S. Tucker has left New Jersey to fill a position with the Westinghouse Electric and Manufacturing Company at the North Carolina office of that company, Room 507, Trust Building, Charlotte, N.C.—One of the most attractive country houses recently built near Boston is that of A. H. Higginson, M. F. H. of the Middlesex Hunt Club, designed by Putnam & Cox.—Gardner is in Boston once more as advertising manager of *Ridgways*, a weekly which is to be published from 170 Tremont Street. The new publication is to be issued simultaneously in fourteen cities, each locality

Digitized by Google

having a certain number of pages devoted to its own particular news and thought. The magazine will contain as well editorials and special articles of national interest, fiction, humor (edited by Burgess, '87), and cartoons. Under the plan of publication it will be possible to edit all these departments up to within twenty-four hours of its appearance on the news-stands. Another feature is a Washington department, in which twelve special correspondents, each assigned to one of the departments of the government, will review the work of those departments in an independent manner.

1899.

HERVEY J. SKINNER, *Sec.*, 93 Broad Street, Boston.

Thomas Frank Lennan and Miss Charlotte Elizabeth Gregg were married at Joplin, Mo., on June 27, 1906.—Hans P. Jensen, who was formerly located in Roanoke, Va., has recently moved to Chicago.—William L. Morris was married to Miss Catharine Winifred Grey at Washington, D.C., on June 13, 1906.—Lyman P. Hapgood has recently made a change, and is now superintendent of the Springfield Water Company, Springfield, Mass.—The secretary received a call from Albert F. Nathan a short time ago. "Willie" was looking both fat and happy. Since graduating he has had considerable experience in patents. He has been one of the assistant examiners in the United States Patent Office, later in charge of the Montreal office of Fetherstonhaugh & Co., patent attorneys. He is now in business for himself in New York City as attorney-at-law and solicitor of patents.—Etheredge Walker writes that he has made another move, and is now at Yreka, Cal.—John L. Tufts has returned to Boston, and is associated with Herbert S. Kimball. They are engaged in chemical engineering and mill architecture, and have offices in both Boston and New York.—Gerald B. Street is with the Imboden Coal and Coke Company, Imboden, Va. He was formerly connected with the Calumet and Arizona Mining Company at Bisbee, Ariz.—Benjamin P. Haseltine has recently been transferred from McKeesport, Pa., to Wheeling, W. Va. Haseltine is with

Digitized by Google

the National Tube Works.—Clifford M. Swan has spent the greater part of the summer camping out with the Appalachian Mountain Club, of which he is a member, at one of their camps, "Three Mile Island," Lake Winnepesaukee, N.H.—Miles S. Sherrill and Professor Noyes, of the Institute, have spent the larger part of the summer cruising along the Maine coast. At different points they picked up friends and gave them short cruises, thus making the trip doubly enjoyable. Sherrill wound up the summer at Marshfield, his old stamping ground. He is brown as a nut, and is looking and feeling fine.

1900.

R. Wastcoat, *Sec.*, Dedham, Mass.

The secretary received a letter recently from the Committee on Publication, stating that, as this was the vacation season, they hoped that it would be possible to have a large number of items of interest for the class news. The Committee on Publication may find time to have vacations, but with the secretary it has been otherwise. So far, he has had one day off, and took a trip on the Provincetown boat, and, owing to the rough sea, the sights provided would more than make up for those usually seen on an ordinary two weeks' trip. It is needless to say that the secretary was unaffected. He has a large amount of modesty, as probably by this time the readers of these items will have found out, as he has never inserted any news about himself. But now he is going to do the opposite, and, also, instead of leaving it to the last, is going to put it in first. He does not offer it as an apology for not having a large number of items of interest, but hopes that it will be accepted as such. Most of the men acquainted with him are aware of the fact that Ellis (V.) and Chalmers (X.), both being members of 1900, are associated with him in a corporation under the name of Ellis-Chalmers Company, which is marketing Ellis's inventions in the chemical line. The principal product is a paint and varnish remover. This was invented and patented by Ellis in 1902, patents being taken out in this and foreign countries. Before Ellis's

Digitized by Google

invention, all paint and varnish removers were either of a carbolic acid or an alkaline or potash nature, and were very unsatisfactory to use, being injurious to the hands and wood. Ellis produced the first satisfactory neutral paint and varnish remover. After this had been placed on the market and proved successful, the patents were infringed by a large number of manufacturers. For the past two years, litigation in regard to these patents has been in progress, the final outcome being that in August the court upheld the Ellis patent, making it a basic patent which covers the field of neutral paint and varnish removers as now manufactured, and Ellis's name is now known throughout the paint and varnish trade of the United States. The successful outcome of this litigation has made strenuous times for all three concerned, and accounts for the small amount of time that the secretary has had to collect class news.—Morris Whitehouse, who was connected with our class in the Course of Architecture, is to go abroad this year on the new Fellowship in architecture.—D. S. Johnson (III.) is now connected with the Tonopah Mining Company's mill at Millers, Nev. His former address was with C. C. Moore & Co., Tonopah, Nev.—Walter Clark Dean (VI.), who has been electrical engineer at the Norfolk Navy Yard, is now established as a consulting engineer in Norfolk, and is located at the Bank of Commerce Building. Dean predicts that Norfolk will be one of the largest cities on the coast, and advises any one who can to locate there. He believes, not only in locating there himself, but also in adding to its population, for this spring he reported the arrival of a "little Dean." We wish Dean success in his new line of work, and also congratulate him on the happy event.——Robert S. Blair (VI.) is established as a lawyer at 60 Wall Street, New York, and is making a specialty of patent work. Blair's family has been increased from two to three by the arrival of a baby, at the present writing three days old. We extend our congratulations.—Zeigler (II.), who has been connected with the Western Electric Company, with headquarters at New York, is now located in Laconia, N.H., and is with the Mayo Knitting Company as general superintendent of their factory.—Walworth (II.) spent his vacation this summer in the White Mountains, stopping off one day at Laconia,

Digitized by Google

and calling on Zeigler. He reports him as getting along finely.—Oxnard (I.), who has been down in Mexico, has decided that the States are good enough for him, and his new address is now Norway, Me.—Ripley (V.), who has been studying at the University of Heidelberg, Germany, for a doctor's degree, has returned, and his address is now Andover, Mass.—Charles J. Davis (I.), who was connected with our class for a couple of years, is working for the New York, New Haven & Hartford Railroad, and his address is 19 Columbus Park, New Rochelle, N.Y. Davis writes that he is very busy, and has a wife and two fine boys: one two years and the other two months old. Between the two boys and the railroad, we should imagine he might be busy.—Russell (I.) has joined the Corps of Coast Artillery, and has the rank of Corporal. He is connected with the non-commission staff, and performs the duties of orderly. Russell has quite a record for shooting, and is among the best marksmen of the corps.—Warren (II.) has been keeping house at Winthrop for the past summer, and is connected with Dean & Main. He has made a specialty of concrete work, and was connected with the concrete construction of the Beverly plant of the United Shoe Machinery Company. He had charge of the concrete construction in the new Wood Worsted Mill at Lawrence, Mass., which is the largest mill of its kind in the world, being over a quarter of a mile long.—Vogel (I.) is connected with the Lackawanna Steel Company at Buffalo as master mechanic of the coke department. He managed to break away for a couple of weeks, and came East to visit his family and also make the secretary a call. Vogel says he has his hands full in this position, and is oftentimes obliged, owing to breakdowns, to be on duty for thirty-six hours at a stretch.—F. E. Everett (I.) is inspecting State highways for the New Hampshire Highway Commission, and is located with headquarters at Concord.—D. E. Maxfield (II.) on October 1 will be connected with the D'Olier Engineering Company of Philadelphia, who do a general engineering and contracting business, putting in power plants, etc. Maxfield has been connected with the Sturtevant Company at Hyde Park.

Digitized by Google

1901.

R. H. STEARNS, *Sec.*, 15 Beacon Street, Boston, Mass.

The class of 1901 met last June, for their fifth anniversary reunion, to find their ranks much depleted by the exodus westward. Sixteen men met at the dinner. Vice-President Campbell presided, Brush and Freeman talked, and the secretary exhibited an empty purse. Messrs. G. W. Allen, Boyd, Brigham, L. D. Chandler, Farnham, Hall, Monaghan, Perry, Scully, Sweetser, and Williams formed the complement of the party. The annual election raised Charles F. F. Campbell (IX.) to the pillar of the presidency, and forced the secretaryship on the above-signed. The statistics of the class (an abstract of which is given below) was read in detail, and showed '01 was making her way in the world. The appeal for some sentiment for the occasion roused the class bard, E. H. Davis, now professor at Purdue, and he responded by sending on an ode, of which the first and last verses were:—

'Twas five years ago, so the calendars tell us,
That out of the portals of Rogers there poured,
Each with a degree, if good fortune befell us,
A light-hearted, jovial, excellent horde.
Five years before that in the Preps we were plugging,
And looking on Tech as a valley of tears.
And now, five years later, our memories hugging,
We hail the old 'Stute with tumultuous cheers.

And one thing I CAN do, and do with a relish,—
Sing praises of TECH, howe'er rusty my pen.
Its graces have need of no poet to embellish,
No poet could do justice to Institute men.
So, fellows, here's hail and a thousand good greetings;
Here's fortune to all, without waiting or check;
And, lastly, here's hope for full fifty more meetings
At our grand, independent, unparalleled TECH!

Digitized by Google

—Letters from Past President Lawrence, ex-Secretary Higgins, and others were read, stories were passed around the table and we left for the Pops. There we found our place amid the good time, and got as hoarse as the rest. The Stein Song at the close brought Brush to his feet, and that eloquent tenor voice surging above the great chorus brought back a reminiscence of the young brave of "The Medicine Man," now a street railway magnate.—Replies received located W. I. Bickford (VI.) at Pittsburg, secretary of the Iron City Engineering Company.—Higgins in St. Louis, a prosperous member of the firm E. H. Abadie & Co.—Our first president Reuben B. Clark (XIII.), is building yachts at Riverton, N.J.—F. W. Coburn, E. B. Cook, and M. W. Hogle are in the steel works, the first two as superintendents, the last as engineer.—George A. Hall is undergoing a metamorphosis into a minister, and is at Yale.—Salvador Madero heads a rubber plantation and factory in Mexico.—Friend Vermylye was married about a year ago, and is settled in Brookline, Mass.—Harry E. Dart was married to Miss Maude Smith Ruland on August 29 last.—F. W. Puckey and H. T. Blanchard are studying in Paris.—Robert White, Jr., E. L. Chapman, and the secretary have been abroad this summer.—The engagement was recently announced of Charles K. Flint to Miss Elizabeth De Nike, of New York.

STATISTICS OF THE CLASS OF 1901

(June, 1906)

The following data are prepared from information received from 106 men. Six members of class are studying abroad. Sixteen men are teaching at various colleges and schools. Of the 106 men, 53 are married, 7 more are engaged. Of the 53 married, 24 have children to the aggregate number of 34, 19 boys, 15 girls. Marriages have taken place as follows: in 1901, 5; '02, 6; '03, 12; '04, 15; '05, 10; '06, 3.—Seventy-five men replied with regard to their income from professional work. While some of these men may have been somewhat optimistic, the secretary knows that other men with

Digitized by Google

fancy salaries failed to respond, so that the average is not greatly exaggerated. The fact that the Western States show a low average is doubtless due to the small number of returns from that part of the country. One man reports an income of $100,000, if the secretary read the figures aright, but it seemed best to exclude it in making up the average. The next largest income was $6,000, the smallest $1,000, and the average $1,800.

AVERAGE INCOME

By Courses

Mining Engineering	$2,625	
Naval Architecture	2,200	
Chemistry and Chemical Engineering	2,180 or	1,800*
Civil and Sanitary Engineering	1,910 or	1,720*
Electrical Engineering	1,700 or	1,600*
Mechanical Engineering	1,630 or	1,490*
Architecture	1,620 or	1,400*
Biology and General Studies	1,370	

By Geographical Location

New England States	$1,510 or	1,450*
Middle Atlantic States	1,980 or	1,790*
Central and Southern States	2,370 or	2,000*
Western States	1,600	
Average for 75 men	1,850	
Average for 73 men	1,750	

1902.

F. H. HUNTER, *Sec.*, 36 East 28th Street, New York, N.Y.

The following addresses have come in since our last report: Reynolds, 53 Hereford Street, Boston.—E. E. Nelson, Fort Worth, Tex., with Northern Texas Traction Company.—Randall is at 360 Commerce Street, Dallas, Tex.—Starr, 83 Wheeler Avenue, Edgewood,

*Excluding one abnormally high.

Digitized by Google

Providence, R.I.—H. W. Stebbins, since the earthquake, is relocated at 523 Monadnock Building, San Francisco. He is with the Atlantic, Gulf & Pacific Company.—A. T. Nelson is with the United States Geological Survey at Williston, N.D.—Archie Gardner is at Babylon, L.I.—R. E. Kimball is at 716 Broad Street, Sewickley, Pa. His permanent address is care Riter-Conley Manufacturing Company, 55 Water Street, Pittsburg, Pa.—W. C. Taylor is now in the office of the chief engineer, Erie Railroad, 11 Broadway, New York.—Hudson has removed to 311 Essex Street, Salem, Mass.—Fitch is at 240 Jefferson Street, Dayton, Ohio.—Seabury is located at West Shokan, N.Y.—Strand is with the National Fireproofing Company in Boston.—L. B. Haworth is with the New England Telephone and Telegraph Company, Boston.—Manley is in the Adirondacks, shaking off tuberculosis.—Pearson is studying for orders in the Episcopal Church. He is at the General Theological Seminary, New York.—C. A. Sawyer married Miss Clara Lucille Zeiss, of Waban, Mass., on September 15, while on the 5th, Towne was married to Miss Lois Lillian Twitchell, of Milan, N.H.—Your secretary has removed to New York at the above address. He is with the Underwriters' Engineering and Construction Company at 1170 Broadway.—The class of 1902 is much in evidence at the Technology Club of New York. Read, who is assistant editor of the American Telephone Journal at 116 Nassau Street, is Chairman of the House Committee. Annett, who is with the Gunn Richards Company, 43 Exchange Place, is the Treasurer. Rayne Adams, with Howard Greenley, 12 West 40th Street, and Place, who is mechanical engineer with Reed & Stem, 314 Madison Avenue, the architects for the new Grand Central Station, are frequent visitors at the club-house. The engagement of Professor William Henry Whitcomb, of Oxford, Ohio, to Miss Emma Florence Hubbard, of Newton, was announced the last of September.—On September 28 Herbert E. Raymond was married to Miss Ruth Isabelle McNaughton, of Watertown, Mass.

Digitized by Google

1903.

W. H. ADAMS, *Sec.*, Polytechnic Institute, Brooklyn, N.Y.

William Winslow Burnham died in Wilmington, N.C., August 11, at the age of thirty years, eleven months, and eighteen days.

1904.

CURRIER LANG, *Sec.*, Michigan Central Depot, Detroit, Mich.

The summer has brought very little news of '04 men to the secretary. The following items are all there is to offer.—A. W. Bee has left the Pennsylvania Lines west of Pittsburg, and gone to the Ferro-concrete Company of Cincinnati.—W. H. Eager is now with the Whitman & Barnes Manufacturing Company of 120th Street, Chicago.—W. E. Hadley has lately moved from the galvanizing department of the National Tube Works into the blast furnace department.—W. U. C. Baton is located with the Washington Filtration Plant as first assistant chemist. The chief chemist and superintendent is S. S. Longley (I.), who was '04 for some time.—On Monday evening, September 10, Arthur Ditson Smith, of Bayonne, N.J., was married to Miss Haidee Margaret Tozier at St. John's Episcopal Church, East Boston.

1905.

ROBERT H. W. LORD, *Sec.*, 248 Tremont Street, Newton, Mass.

On account of the difficulty of getting together fellows of '05 who represent fairly the wishes of the class as a whole, the secretaries have to decide upon the general policy of the class either themselves or else with the advice of the men in the immediate vicinity of Boston. But now a question has come up which, we think, should be decided by the general consensus of opinion of those fellows at a distance as well as those around Boston. Following is a letter from Buell, the gist of which is the same as several

Digitized by Google

other letters which have been received, namely: Are we to have a triennial?

In your letter you mention a big reunion to take place in 1909. In regard to this. Before our class left Boston, it was proposed at some class dinner that we inaugurate the custom of Triennial Reunions, which would bring the first one in 1908. Other '05 men have spoken of this question, and I would consider it a favor if you would let me know the present plans in that line. I venture to suggest that those in charge of the arrangements for that occasion see if special round-trip rates of one fare plus one-third or one-fifth cannot be obtained, as I have understood that Harvard graduates have the advantage of such rates at their Commencements.

If there were to be no "General Reunion" in 1909, there is no question but that we should have a triennial. But there is to be a General Reunion in 1909, and the problem narrows down to would or perhaps could the whole crowd come back two consecutive years? We want a large representation in 1909, and, if some of the men come back in 1908 and could not come in 1909, would this not detract from the attainment of the object which the older alumni have striven for in the General Reunion? And, again, if some come in 1908, some in 1909, we would not all be together either time, and we would miss a good many old friends. Besides this two reasons have been suggested for not having the two reunions: first, the expense to fellows far off; and, second, inability to secure time off just when you want it on two consecutive years. If we have the one reunion in 1909, we could easily come a few days earlier and camp out together or some such stunt. Every one write in, and let us know his ideas.—In June a letter was received, consisting of one sheet of paper, with the simple phrase on it, "Rah for Tommy!" and enclosed was this newspaper clipping:—

On Wednesday of last week at Berlin, N.H., there was celebrated the marriage of Miss Miriam Lane, daughter of L. B. Lane, cashier of the Berlin Savings Bank, to Thomas W. Estabrook, who is at present in the International Paper Company's mill at Berlin, learning the business in all its details. Mr. and Mrs. Estabrook are to make their home at Berlin, N.H., for the present.

Digitized by Google

—Bush had a letter from Gage, saying:—

I am a draughtsman on the canal, and like it very much. J. H. Flynn, Jr., is head draughtsman. F. A. Browne and R. J. Lyons of 1906 are also here.

—Charles B. Mayer writes:—

You might be interested to know that I am, and have been, with the Trussed Concrete Steel Company since the early part of March. Up to that time I was with the American Bridge Company, and had excellent experience in steel detailing. Now I'm studying reinforced concrete with a vengeance. I saw Bushnell at the New York Technology Club on the 26th of July. See Ros Davis occasionally, as he lives in Brooklyn, and, of course, many of the '05 architects. They all seem to be getting on famously.

—Bill Keen writes that it is well worth the price to get an occasional bit of news from the 'Stute, even if it is a class assessment, also that J. L. Merrill (V.) was married June 30.—A. H. Smith was married on June 21 to Miss Helen L. Brewster, of Malden.—Ned Jewett was married on September 25 to Miss Elsie Leavitt, of Roxbury, and H. W. Kenway on October 10 to Miss Elsie V. Tinker, of Newton.—In some way the stencils for E. M. Lines got mixed up, and he was receiving the class mail of one of our fair co-eds. We were about to report his engagement in the REVIEW when a letter from him informed us of the mistake.—James P. Barnes writes as follows:—

. . . About time you heard from me? Well, don't know but it is at that. I've done a good bit of moving around since I left Tech, and, as I'm getting heavier, it uses up my vitality to move much. Maybe that will account. Last summer I was with the U. V. M. V. Ry. Co. in Utica, and on September 15 I went to Pass & Seymour in Solvay, a suburb of Syracuse. On June 15, '06, I came back to Utica with the Oneida Railway Company, which is doing the work on the West Shore Electrification from Utica to Syracuse. While I was in Solvay, I found time to get married. That was on June 3, 1906, and the lady in question was Miss Merriam Ernhout, of Syracuse. I saw Fred Bennett a little while ago. He's looking disgust-

Digitized by Google

ingly healthy for a man on Barge Canal work. He's the only man I've seen from '05 for a long time, but I bumped into Freddie Simonds, '04, one day. He is bridge inspector on the Mohawk Division, New York Central & Hudson River Railroad. That is about all I know, except that I wish you'd get my address for the TECHNOLOGY REVIEW changed to care of Oneida Railway Company, Utica, N.Y., as I haven't a copy here and don't know whom else to write about it. Yours in the old spirit.

—We were glad to hear that Flynn had not absorbed any harmful bacteria at Colon. He writes:—

I am spending a few weeks' leave of absence from Isthmus of Panama in dear old Boston, and find those weeks are moving away almighty quick. You know I have been working for the Isthmian Canal Commission for the last year or more in the Mechanical Division. I have recently been appointed chief draughtsman of this division, and have also changed my address from Ancon to Culebra, Canal Zone. Gage, '05, is working as draughtsman in same division, and I expect that four or five more '05 men will accept appointments this summer. The people of the United States can then rest assured that the canal will be quite properly constructed.

From Walker we have:—

My last letter must have reached Wentworth too late for the July issue, so I must start some little time back. Killion went to Washington the last of May to assist in superintending the execution of a large 800-ton power plant. We have heard nothing from him since, so presume he is still there. Would like to have him send in his address, so we can keep tabs on his whereabouts. Keen went to his home in Malden on a vacation several weeks ago. The novelty was too much for him, and he was taken ill with typhoid fever within a few days after his arrival. We are glad to state that he recovered after a short illness. However, the doctor forbade his returning to this city until October. . . . By the way, what do you think of a '05 man that would leave Boston the 5th of last June? I have been thinking that same thing of him (his name is Walker) ever since, but circumstances alter cases, and this was a circumstance. Sid Cole, formerly with the Ontario Power Company, Ontario, Can., accepted a position last month with the Lanston Monotype Company of this city. That makes five '05 men employed by this company at present. You undoubtedly know about Jack Flynn's visit to Boston,

Digitized by Google

and how he took back with him to Panama his own sister to keep house for him: leastwise, that is the way the report runs. Jack has the true Tech spirit, and was offering mighty good inducements to several '05 men to return to the Isthmus with him. I hear that Bixby accepted, and is undoubtedly in the Canal Zone by this time. Cole gives me the following information. Arthur Freeman has left the Sullivan Machine Company, and accepted a position in Washington, D.C.,—something to do with heating and ventilation on a government building. Joe Brown is at present at the New York office of the Sullivan Machine Company. Eichler took a flying business trip to Bellows Falls, Vt., a short time ago. He passed through Boston on his way, and that made him so homesick he is now looking for a vacation. I will give you the following changes in residence addresses: Sidney L. Cole, Walter G. Eichler, and H. LeR. Walker, 1730 Tioga Street, Philadelphia, Pa. Lander's address should be 3121 Columbia Avenue, not Columbus, as given in the July REVIEW. The business address of all four is 1231 Callowhill Street, Philadelphia. The '05 Quaker Society has been rather quiet this hot weather, but there will be something doing as soon as it comes cooler. Are there any new '05 men in the city? If so, please speak up. Will all '06 men in this city kindly drop me a postal or letter, and tell me their whereabouts? We '05 men wish to welcome them to the city. Yours for the '05 Quakers.

—Ned Jewett writes that he met Ashley in Louisville. Ashley is with the Abadie Construction Company of St. Louis, and doing some conduit work for the Louisville Street Railway Company.—J. A. Pitts, of Johannesburg, South Africa, writes that he will probably not attend the class dinner.—The firm of Stetson & Jorgensen, electrical engineers, has been formed, with offices in Boston. Stetson has been with the New England Telephone Company since graduation, and we wish him every success starting out for himself.—Gib Tower is with the Associated Factory Mutual Fire Insurance Company of Boston.—Charley Boggs is chemist for the Simplex Electrical Company of Cambridgeport.—It has been suggested that we form a Boston Club of 1905, whose sole official duty should be to meet on a certain day of each month, and dine together at the club. This idea has met with favor with every one with whom we have talked, and plans for the execution

Digitized by Google

will be started immediately. It is understood that any member of the class happening to be in Boston will be expected to present himself.—Hallet R. Robbins, whose address is care Collbrau & Bostwick, Seoul, Korea, writes under date of June 20, 1906, from Songchin, Korea, as follows:—

The April edition of the REVIEW has just come to hand, and it occurs to me that possibly some '05 men would be interested to hear from that classmate of theirs who perhaps is farthest away from his Alma Mater at the present time.

I came to Korea last summer to take the position of assistant superintendent of the Cyanide Department of the Oriental Consolidated Mining Company at Taracol, Ping Yang province. I found everything just about the opposite of what I was told in New York when I signed my contract with them. So I left about the middle of March, after a slight disagreement with the superintendent, resulting in the demolition of his front door by the toe of my boot and various other exciting and interesting events. I came down to Seoul from Anju over the newly opened Jap railroad to Wiju, jammed into a box-car packed full of Japs and Koreans.

In Seoul I accepted a position as prospector and consulting engineer with the Manchu Syndicate, Limited, of London, and since the first of April I have been travelling through the northern provinces, examining native mines and prospects in company with an engineer from Australia. I have been in many places never before visited by white men, and have been a source of great curiosity and amusement to the natives. I expect to get back to Seoul in a month, and hope to go to Manchuria then, though, if the Chinese government persists in refusing us passports, I may find myself out of a job. The Syndicate is a first-class outfit to work for, and their treatment of me has been generous in the extreme.

In common with all other white men in the Orient (except newspaper correspondents who know on which side their bread is buttered) I have learned to hate the Japanese most cordially. The Japanese soldier is far inferior to the American negro soldier in every way. I would back one negro against a dozen of "our little brown heroes." Some day the American and English people will wake up to the fact that they have been making silly fools of themselves over the Japanese. I only hope the awakening will come before it is too late. Let me say right now the yellow peril is no idle dream. The sooner some white nation administers to Japan her needed trouncing, the better it will be for the white race.

Digitized by Google

Many Koreans up this way speak Russian, and give very good reports of the Russians. They tell of kind, fair, and generous treatment by them in every instance. I have never heard from a Korean a single word against the Russians. Koreans are reported to be leaving this port of Songchin for Vladivostok at the rate of 10,000 per month to escape the persecutions of the Japs and find peace and prosperity under the St. Andrew's cross of the "Colossus of the North."

Following are the changes of addresses since the last REVIEW: J. P. Barnes, care Oneida Railway Company, Utica, N.Y.—H. A. Buff, 23 Cheshire Street, Jamaica Plain, Mass.—Sidney L. Cole, 1730 Tioga Street, Philadelphia, Pa.—A. M. Dean, Maryland Avenue, Hagerstown, Md.—L. J. Killion, 2251 1st Street, N.W., Washington, D.C.—Miss Kujo Makino, 3 Takejimacho, Koishikawa, Tokyo, Japan.—E. F. Moody, Vera Chemical Company, Stoneham, Mass.—I. A. Murr, 467 Broadway, Albany, N.Y.—P. M. Paine, care Sullivan Machinery Company, Salt Lake City, Utah. ("A bad place for Peacham.")—J. H. Tebbets, 123 Pembroke Street, Boston, Mass.—H. C. Stetson, 6 Beacon Street, Boston, Mass.

1906.

T. L. HINCKLEY, *Sec.*, 745 Osceola Avenue, St. Paul, Minn.
A. T. HEYWOOD, *Res. Sec.*, Mass. Inst. of Technology, Boston.

The men of 1906 have now had four months in which to make the acquaintance of that complex and curious thing which is called "the world." To some of us who have already been initiated the return among the activities of our great country—no matter in how humble a capacity—is full of inspiration and possibility. To those who rub elbows with the "man on the street" for the first time there are doubtless many facts and institutions which appear unreasonable and strange. It is to be hoped, however, that we all, whether experienced in the way of the world or not, have met whatever has fallen to us to do with willingness and determination. Success to all of us!

Digitized by Google

It is not generally known that the class had $450 left over at the close of the Senior Week events, in addition to the sum voted for alumni expenses. Pending the vote of the class, the treasurer, Mr. H. C. Henrici, provisionally gave this sum to a scholarship fund suggested by Bursar Rand. It will be available to men not reached by the ordinary scholarships. Part or all of this sum is still applicable to 1906 uses, if at any time there is urgent need of such money by the class. In our opinion the class owes a large debt of thanks to Mr. Henrici for such a successful completion of our financial career at the Institute, and also for his good judgment in disposing of the surplus as he did.

There are one or two things which the secretaries would like to say to 1906 men. One is that this REVIEW, the staff of which renders its services entirely gratuitously, is quite likely to be delayed in publication, but that the specified number of issues will always be forthcoming. Postals requesting address and information concerning occupation have been sent to every member for whom an address could be found. It is certain that some members have not been reached. We would like to get into communication with such men as soon as possible, and will appreciate any aid to this end.

Ours is a big class, and, judging from the replies already received, it is making some headway toward doing its share of work in the world. The following notes include replies to date:—

Daniel Adams (II.), 55 Jackson Street, Lawrence, Mass., draughtsman, Pacific Mills.—Howard P. Adams (II.), 202 West 44th Street, New York, N.Y., with Western Electric Company.—Ogden Ross Adams (Sp.), Seattle, Wash., assistant master mechanic, Seattle Electric Company.—Simon Carlyle Allen (V.), Genesee Fruit Company, Rochester, N.Y., chemist, American Fruit Product Company.—Fritz Albert Armstrong (I.), 220 West River Street, Hyde Park, Mass., student at Harvard University.—Allen Ashley (VI.), St. Louis, Mo., with the E. H. Abadie Company, engineers and contractors.—Herbert J. Ball (II.), 315 Pawtucket Street, Lowell, Mass., instructor in mechanical engineering at Lowell Textile School.—Edgar C. Ballou (II., IV.), 15 Laura Street, Providence, R.I., secretary, F. E. Ballou Company.—James Ira Banash (VIII.),

Digitized by Google

5 Fayston Street, Roxbury, Mass., Assistant in Physics, M. I. T.—Raymond James Barber (III.), Bingham Cañon, Utah, assistant engineer, Boston Consolidated Mining Company. Married June 20, 1906, to Miss Mabel Leonard.—Earl S. Bardwell (III.), private assistant to Professor R. H. Richards, M. I. T.—H. P. Barnes (I.), White Plains, N.Y., rodman with Board of Water Supply. Barnes, better known by the pseudonym "Pete," tried to live in New York City for a month, and then retired, disappointed, to White Plains, where his shattered nerves are gradually mending. "Pete's" address is still "Plymouth, Mass.," however.—Charles T. Bartlett (I.), Box 392, Crafton, Pa., assistant on engineering corps, Pennsylvania Lines P., C., C. & St. L. Ry., Pittsburg Division. Bartlett has been running courses all summer for the Pennsy. It is certainly too bad for such a straight man as Bartlett to have to follow such crooked paths.—Fred R. Batchelder (VI.), Hampton, N.H., about to enter the apprenticeship course of the Westinghouse Electric and Manufacturing Company.—William P. Bearce (I.), Foxboro, Mass., first assistant draughtsman, Boston & Providence Electric Railroad.—Harold W. Beers (I.), 32 Cedar Street, Taunton, Mass., Assistant in Civil Engineering Department, M. I. T.—Frank A. Benham (I.), 48 St. Stephens Street, Boston, Mass., American Telephone and Telegraph Company, 125 Milk Street, Boston, Mass.—Leavitt N. Bent (X.), Framingham, Mass., Research Assistant in Technical Chemistry, M. I. T.—E. M. Berliner (II.), 1458 Columbia Road, Washington, D.C., assistant engineer, temporarily, under Dominion Engineering and Construction Company, Montreal, Canada; student at M. I. T.—Rutherford Bingham (VI.), Technology Chambers, Boston, has been travelling in Europe during the summer, student at M. I. T.—Otto B. Blackwell (VI.), 16 Rutland Square, Boston, Mass., with the American Telegraph and Telephone Company.—Albert A. Blodgett (IV.), 28 Greenville Street, Roxbury, Mass., graduate student in architecture, M. I. T.—Laurence G. Blodgett (I.), Munroe, La., assistant engineer with A. M. Blodgett, contracting engineer of Kansas City. At work rebuilding U. S. & R. R.R. bridge across the Ouachita River at Munroe. Blodgett has been hard at work constructing bridges, etc., in Louisiana. He reports

Digitized by Google

that Shapleigh, formerly '06, was inspector for the railroad on one job that he was engaged on. "Shap" made Blodgett drive piles down about as far as they could be driven by human agency, until, says the latter, "they couldn't go a — inch farther!"—David Bloom (V.), 377 Broadway, South Boston, Mass.—Louis L. Booth (II.), Poughkeepsie, N.Y., architectural draughtsman. Booth is in no hurry to get married.—A. L. Boynton (II.), 88 Chatham Street, Worcester, Mass.—Charles F. Breitzke (I.), 78 Fisher Avenue, White Plains, N.Y., assistant engineer, New York Board of Water Supply, office 4 Grand Street, White Plains, N.Y.—H. H. Brown (XIII.) is reported by Barnes (I.) to be editing a paper somewhere (address not given). Perhaps it's just as well.—Harry W. Brown (II.), 118 Brighton Corner, Allston, Mass., draughtsman with Stone & Webster, 84 State Street, Boston, Mass.—Frank Atwood Browne (XIII.), Culebra, Canal Zone, Panama, mechanical draughtsman in the government employ.—Harry W. Buker (III.) is reported with the Boston & Montana Company, Great Falls, Mont.—Charles Randall Burleigh (II.), 741 Broadway, Albany, N.Y., with Consolidated Car Heating Company.—George E. Burnap (IV.) is at present working in the landscape department of Isaac Hicks & Son, nurserymen, Westbury Station, L.I., N.Y.—C. W. Burpee (I.) is stationed at Louisville, Ky., and is on the engineering corps of the Louisville & Nashville Railway.—Shields Burr (I.), Woonsocket, R.I., assistant superintendent, Glenask Knitting Company.—Edmund S. Campbell (IV.), 48 St. Stephens Street, Boston, graduate student, M. I. T.—Sidney T. Carr (VI.), 18 Thayer Street, Quincy, Mass., apprenticeship, engineering course, Westinghouse Electric and Manufacturing Company.—Henry P. Carruth (V.), American Writing Paper Company, Holyoke, Mass., chemist, representing Mr. A. D. Little, of Boston, with above company.—C. E. Carter (I.), care of William Ashton, chief engineer, Salt Lake City, Utah.—From the Reading (Mass.) *Chronicle* of July 21, 1906: "Clarence E. Carter, S.B., who graduated from the Massachusetts Institute of Technology,' 06 class, in June last, has accepted a position with the Oregon Short Line, and started for Salt Lake City, Utah, the headquarters of the company, last Thursday, from Mt. Vernon, N.Y., where he had been tem-

Digitized by Google

porarily employed." He has been at work as assistant engineer on resurvey of Nevada & California Railroad.—Anna M. Cederholm (V.), 65 Marlboro Street, Belmont, Mass., Research Assistant in Technical Chemistry, under supervision of Dr. Walker, at M. I. T. Subject, Corrosion of Metals.—Willis S. Caypless (III.), 1035 Logan Avenue, Denver, Col., chemist, American Smelting and Refining Company.—W. E. Chadbourne (XIII.), 41 Newport Street, Dorchester, Mass., assistant in Standardizing Laboratory of Edison Electric Illuminating Company, Boston, Mass.—John Patten Chadwick (III.), 138 Main Street, Saco, Me., student at M. I. T.—Charles H. Chase (II.), 15 Westfield Street, Dedham, Mass., draughtsman with Lombard Governor Company.—Eugene P. Chase (VI.), 817 Walnut Street, Wilkinsburg, Pa., apprentice, Westinghouse Electric and Manufacturing Company.—Arthur M. Chidester (I.), Technology Chambers, Boston, Assistant at Technology, Civil Engineering Department.—Earl G. Christy (XIII.), 2924 Collingwood Avenue, Toledo, O., draughtsman, architectural and naval.—Prescott J. Clapp (II.), 169 Boston Street, Upham's Corner, Mass., student at M. I. T.—J. Redman Clark (II.), 5330 Bartmer Avenue, St. Louis, Mo., salesman with the Forbes Lithograph Manufacturing Company of Boston, Mass., located in St. Louis.—Robert Sidney Clark (XIII.), 9 Green Street, Claremont, N.H., clerk in office of Sullivan Machinery Company.—Ralph S. Clarke (VI.), 35 Rockwell Street, Dorchester, Mass., with the engineering department of American Telephone and Telegraph Company.—Lewis Cutler Clarke, Jr. (graduate IV., '04), 264 Green Street, Cambridge, Mass., architectural draughtsman with Parker & Thomas, 20 Beacon Street, Boston.—Clarence M. Cockrell (VI.), Denton, Tex., teaching.—Maxwell A. Coe (II.), 43 Ashland Street, Medford, Mass., back at 'Stute to get his degree.—Harold V. O. Coes (II.), 345 West 70th Street, New York, N.Y., special apprentice with Western Electric Company for one year, after which he expects to go into the engineering department—Stewart C. Coey (VI.), 156 Broad Street, Newark, N.J., assistant in electrical engineering department of J. C. White & Co., 43 Exchange Place, New York, N.Y. "Stewy" expects to follow "Wet's" example in 1908.—Harry Hall Cook (II.), 27 Lamartine Street,

Digitized by Google

Jamaica Plain, Mass., head draughtsman with Coffin Valve Company.—Raymond E. Cranston (II.), 425 Quincy Street, Dorchester, Mass., with the Associated Factory Mutual Fire Insurance Company.—Robert Ellis Cushman (II.), 741 Broadway, Albany, N.Y., inspector of McElroy Car Lighting System, employed by Consolidated Car Heating Company of Albany, N.Y.—Edward P. Cutler (Sp.), Ensley, Ala., chief electrician for Barrett Manufacturing Company, manufacturer of roofing and paving materials.—William Couper (I.) is reported in New York, N.Y.—E. H. Daniels (Sp.), Natick, Mass., bank clerk.—Henry E. Darling (III.), 125 Milk Street, Boston, Mass., traffic engineer, American Telephone and Telegraph Company, since February, 1906.—George L. Davenport, Jr. (I.), 1113 Union Station, Pittsburg, Pa., assistant with chief engineer's corps, Pennsylvania Lines, west of Pittsburg.—D. C. Davis (VI.), 6700 North 8th Street, Oak Lane, Philadelphia, Pa., engineering department of Bell Telephone Company of Philadelphia.—Leon H. Davis (I.), 25 Union Park, Boston, Mass., working in broker's office.—Roland P. Davis (I.), 42 Broadway, New York, N.Y., with American Bridge Company.—Sidney L. Davis (XI.), Cristobal, Canal Zone, Panama, United States government clerk.—Walter D. Davol (VI.), 19 Bartlett Street, Charlestown, Mass., student course, New England Telephone and Telegraph Company.—Edward H. Dean (Sp.), 38 General Cobb Street, Taunton, Mass., draughtsman with Weir Stone Company, 60–62 Union Street, Boston.—Herbert W. Dean (VI.), 6700 North 8th Street, Oak Lane, Philadelphia, Pa., with engineering department, Bell Telephone Company of Philadelphia.—W. J. Deavitt (III.) is reported in Aguascalientes, Mexico.—W. G. de Steiguer (III.), 12 Newbury Street, Boston, Mass., Assistant in Geology, M. I. T. This summer de Steiguer went on a fishing trip on White River, in the wilds of the Ozark Mountains of Southern Missouri.—F. Eugene Dixon (V.), 25 Hulbert Street, Roxbury, Mass., superintendent, Ellis-Chalmers Company, manufacturing chemists, Dedham, Mass.—R. H. Doepke (II.), 3595 Washington Avenue, Cincinnati, Ohio, connected with Alms & Doepke Company and other interests.—Alice Brooks Douglas, La Fayette Avenue, Hingham, Mass.—John J. Donovan

Digitized by Google

(IV.) is located in New York City, address not yet received.—Ralph L. Dyer (XIII.), 11 Grove Street, Winchester, Mass., studying at Tech.—Sylvester B. Eagan (III.), 993 Delaware Avenue, Buffalo, N.Y., automobile manufacturing and selling.—David D. Eames (II.), 15½ Orchard Street, Auburn, N.Y., draughtsman with McIntosh, Seymour & Co.—Frederic E. Earle (II.), 10 Downer Street, Dorchester, Mass., steam-fitter for Lumsden & Van Stone Company, Boston.—William Firth Eastwood (II.), 155 Ruggles Street, Boston, Mass., manual training teacher, Neighborhood House, 155 Ruggles Street, Boston. Married June 17, 1903, to Miss Catherina E. Soper.—Edward M. Eliot (VI.), Post Falls, Ida.—H. C. Elliott (I.), 11 Ruskin Street, West Roxbury, Mass., with Eldredge, Lewis & Co., 70 Franklin Street, dry-goods commission merchants and selling agents for cotton mills.—Carleton M. Emerson (II.), 72 Mt. Vernon Avenue, Braintree, Mass., solicitor and inspector for Electrical Auditing Company, consulting engineers, Boston, Mass.—Quincy P. Emery (XIII.), 221 Colman Block, Seattle, Wash., civil engineer with Seattle Engineering Company.—William Franklin Englis (XIII.) is reported in New York. No address received as yet.—E. B. Evans (IV.), 116 Cedar Street, Malden, Mass., designing engineer with Purdy & Henderson, civil engineers, Paddock Building, Boston, Mass.—Nugent Fallon (I.), 489 Walnut Avenue, Jamaica Plain, Mass., is with Boston Elevated Railway to spend three months in every department.—Carroll A. Farwell (I.), Office engineer M. of W., Pittsburg Division, 1013 Penn Avenue, Pittsburg, Pa., assistant on engineering corps, Pennsylvania Lines, S.W.—J. H. Feemster, Jr. (VI.), Glendale, Ohio, with Laidlaw-Dunn-Gordon Company, manufacturers steam pumping machinery and air and gas compressors.—Harry Varnum Fletcher (II.), 383 Spring Street, Portland, Me., member of the Engineering Department, Maine Central Railroad.—Charles Eugene Fogg (I.), 1122 Union Trust Building, Cincinnati, Ohio, chief engineer, Western States, for G. M. Gest, subway contractors, New York City, N.Y.—Edwin D. A. Frank (II.), 2300 Grand Avenue, Milwaukee, Wis., graduate apprentice with Allis-Chalmers Company at Milwaukee, Wis.—Floid M. Fuller (II.), (temporarily)

Digitized by Google

92 Electric Street, Scranton, Pa., draughting and testing locomotives for D., L. & W. R.R. Assistant at Tech, 1906–07.—William C. Furer (IV.), 573 Second Street, Brooklyn, N.Y., draughtsman with American Bridge Company of New York.—G. C. Furness (VIII.), 523 River Street, Hoboken, N.J., instructor in physics at Stevens Institute of Technology.—William W. Gaylord (II.), Torringford, Conn., draughtsman, New Works Department of American Brass Company, Waterbury, Conn.—Gerhard, McManus, Sherman, Lynde, and Breitzke, all '06, succeeded in passing the examination for the position of assistant engineer on the New York Board of Water Supply.—Barnes, also '06, passed the examination for rodman.—Michael J. Gibbons, Jr. (VI.), 239 North Main Street, Dayton, Ohio, steam and hot water heating and electrical construction, with M. J. Gibbons, 20 and 22 West Third Street, Dayton.—Nathan Jackson Gibbs (I.), 25 Slater Avenue, Norwich, Conn., civil engineer on United States Engineer Corps for Panama Canal, September, 1906. Previously on engineer corps, New York, Auburn & Lansing Railroad, located at Auburn, N.Y.—Henry A. Ginsberg (VI.), 19 Clinton Street, Cambridge, Mass., engineering department of New England Telephone and Telegraph Company.—Milford D. Gray (I.), 21 Chestnut Street, Woburn, Mass., student in Boston University Law School; Clerk of Committees in the Woburn city government.—James Edwin Griffin (I.), 130 Temple Street, West Newton, Mass., with E. W. Bowditch, civil engineers and landscape gardeners, 60 Devonshire Street, Boston, Mass.—Perley K. Griffin (I.), 86 Walnut Street, Neponset, Mass., employed in the machinery draughting-room of the Fore River Ship Building Company, Quincy, Mass.—Ransom C. Grosvenor (Sp.), 371 Columbus Avenue, Boston, Mass., tool-maker, with Napier Motor Car Company of America, Jamaica Plain, Mass.—George R. Guernsey (I.), 27 Eaton Street, Winchester, Mass., Assistant in Civil Engineering, M. I. T.—F. Bertine Guest (XIII.), 375 Maple Street, Bridgeport, Conn., lumber business.—Frank Haley (I.), 9 Adams Court, Lynn, Mass., civil engineer, Boston & Maine Railroad.—Wallace Ralph Hall (I.), Hunts Point Road, Bronx, New York City, inspector and assistant engineer, New York Contracting Company, New

Digitized by Google

Haven Improvements. Six tracking N. Y., N. H. & H. R.R., between New Rochelle and the Harlem River, distance of twelve and one-half miles.—Henry B. Hallowell (III.), 112 School Street, Belmont, Mass., private assistant to Professor R. H. Richards, M. I. T.—Charles E. Hamilton (VI.), 276 Endicott Avenue, Beachmont, Mass., engineering department, American Telephone and Telegraph Company.—C. E. Hanson (II.) is reported as toolmaker with Walworth Construction Company, South Boston, Mass. —Elmer Ellsworth Harrington (III.), Great Falls, Mont., assistant chemist with B. & M. Company.—M. W. Hayward (III.) is back at Tech, taking post-graduate work in geology.—Alfred R. Heckman (V.), Lake City, Col., assayer.—Albert W. Hemphill (II.), 506 Moore Street, Bristol, Va.-Tenn., with general department of the South & Western Railroad, in the office. Will be on field work after January 1.—George M. Henderson (III.), care Oliver Iron Mining Company, Hibbing, Minn., engineer, Morris Mine. The M. I. T. Summer School of Mining and Metallurgy just missed meeting Henderson when they visited the mines at Hibbing in June.—Alfred W. Hertz (IV.), 2121 Benton Boulevard, Kansas City, Mo. Was working in Boston this summer. Is now architectural draughtsman in office of Charles A. Smith, Kansas City, Mo.—Angelo Tilton Heywood (III.), M. I. T., Boston, Mass., Assistant to the Registrar.—Alexander Hicks (II.), 45 Prospect Street, Claremont, N.H., in premium department, Sullivan Machine Company.—Thomas Lesley Hinckley (XI.), care Ohio State Board of Health, Columbus, Ohio, engineering assistant to the Ohio State Board of Health.—Fred W. Hinds (Sp.), 61 Kirkstall Road, Newtonville, Mass., representing Worcester & Providence Street Railway Company in settling land damages.—L. E. Hirt (III.), 25 Broad Street, New York City, erecting.—Chester A. Hoefer (Grad. VI.), 9 Lincoln Avenue, Freeport, Ill., secretary, Hoefer Manufacturing Company. In charge of stock and cost-keeping systems, also overseeing drawing-room work.—Thomas B. Holmes ($III._8$), Autlan, Jalisco, Mex., care Carrizo Copper Company. Particulars not yet received.—Bruce R. Honeyman (IV.), Christ's Hospital, Cincinnati, Ohio. Recuperating from typhoid fever. We are mighty

Digitized by Google

sorry to hear this, but "Scotch" isn't the kind of a fellow to give in, and we know he will soon be on his feet again. He had started out on concrete work.—W. W. Hosmer, Jr. (Sp.), 63 Rindge Avenue, Athol, Mass., representative of International Correspondence Schools of Scranton, Pa., headquarters, Hartford, Conn. Married Feb. 18, 1905, to Miss Grace Spencer Trask.—Walter A. Hotchkiss (VI.), 698 Kossuth Street, Bridgeport, Conn., draughtsman on plant registry and appraisal with the Union Metallic Cartridge Company, Bridgeport, Conn.—Charles Alton Howard (II.), 55 Duane Street, New York City, assistant to mechanical engineer, with New York Edison Company.—Robert N. Hoyt (Grad. VI.), 40 Oak Street, Hyde Park, Mass., special student at M. I. T.—H. S. Hubbell (III.), 83–85 Washington Street, Brooklyn, N.Y., vice-president, Sawyer Tool Manufacturing Company, Fitchburg, Mass.; acting treasurer, T. R. Almond Manufacturing Company, Brooklyn, N.Y.—George F. Hunt (IV.), Ann Arbor, Mich., instructor in drawing, department of engineering, University of Michigan.—Robert Hursh (III.) is with the American Smelting and Refining Company, in Monterey, N.L., Mex.—H. O. C. Isenberg (II.) is reported to be with Lage in Rio Janeiro, Brazil.—Ralph H. Jackson (VI.), 335 Centre Street, Jamaica Plain, Mass., with the New England Telephone and Telegraph Company, traffic engineering department, charge of magneto equipments.—Arthur Harold Jansson (XIII.), Mt. Pleasant Avenue, Malden, Mass., student at M. I. T.—Charles Edward Johnson (II.), 119 Trenton Street, East Boston, Mass., traffic department, New England Telephone and Telegraph Company.—Joseph W. Johnson (II.), 30 Sumner Street, Dorchester, Mass., with George F. Blake Manufacturing Company.—Karl F. Juengling (II.), 461 Dunham Avenue, Cleveland, Ohio, with A. G. McKee, blast furnace engineer.—Isa W. Kahn (VI.), Homestead Steel Works, care of Electrical Department, Munhall, Pa., electrical engineering office.—C. L. Kasson (VI.), 10 Thetford Avenue, Dorchester Centre, Mass., with Boston & Northern Street Railroad Company, rail bonding, electrolysis, and power distribution work.—Andrew Hamilton Keleher (VI.), care New York Edison Company, 55 Duane Street, New York City, electrical draughtsman, "(starting

Digitized by Google

only)."—Ralph D. Kelly (I.), Room 8, Union Station, Indianapolis, Ind., assistant on engineering corps of Pennsylvania Railroad Company, Lyons, Ind.—Burton Warren Kendall (VIII.), M. I. T., Boston, Mass., Assistant in Physics Department (Phys. Lab.), M. I. T.—Patrick J. Kennedy, Jr. (II.), 221 West 43d Street, New York City, assistant superintendent for O'Rourke Engineering and Construction Company, Pennsylvania Tunnels.—Andrew Kerr (VII.), 317 Forrest Street, Medford, Mass., president of Andrew Kerr Company, manufacturers of high-grade food products, malted cereals, etc., capitalist and real estate owner.—Howard W. Key (VI.), 773 State Street, Schenectady, N.Y., testing department, General Electric Company.—James W. Kidder (V.), 22 Brook Street, Somerville, Mass., traffic department of New England Telephone and Telegraph Company.—Ralph F. Knight (VI.), 49 Church Street, Hudson, Mass., student, M. I. T. '07.—F. S. Krag (II.) is with the B. F. Sturtevant Company, Boston, Mass.—Jorge Lage (II.) and H. O. C. Isenberg (II.) are reported in Rio Janeiro, Brazil.—Abraham L. Lampie (I.), 28 Greenwood Street, Dorchester, Mass., civil engineer with Boston & Maine Railroad.—Clarence E. Lasher (VI.), 19 Bedford Street, Lynn, Mass., student course, General Electric Company.—Ralph Chester Lawrence (Sp.), 26 Highland Avenue, Fitchburg, Mass., with S. S. & H. N. Lawrence, contractors and builders.—Waldron G. Lawrence (Sp.), 34 Sargent Street, Dorchester, Mass., draughting-room, Boston & Northern-Old Colony Street Railway Company's department of motive power and machinery.—Joseph Thomas Lawton, Jr. (II.), Joseph Thomas & Son, Baltimore, Md., draughtsman, "spoiling white paper by making mistakes and erasing."—Charles Tileston Leeds (I.), Washington Barracks, D.C., on duty with Company "H," Second Battalion of Engineers, U.S.A. Married to Miss Amy L. Shapleigh, Jan. 12, 1905. Has one child.—Harry L. Lewenberg (X.), P.O. Box 634, Berlin, N.H., draughtsman and assistant engineer, Burgess Sulphite Fibre Company, Berlin, N.H.—Fay W. Libby (III.), care Nipissing Mining Company, Cobalt, Ontario, Canada.—Hunter Ulrich Light (II.) is reported at 40 West 30th Street, Bayonne, N.J.—M. T. Lightner (II.) is travelling. Particulars expected

Digitized by Google

later.—William H. Lincoln (I.), 125 East 28th Street, New York City, with Penn. New York & Long Island Railroad.—Fred C. Line (III.), 50 Rowley Street, Rochester, N.Y., thirteen months as transitman and resident engineer on Buffalo, Lockport & Rochester Electric Railway. Has returned to the Institute, '07 and III.—Frank Logan (IV.), 1318 Vine Place, Minneapolis, Minn., with engineering department, Northwestern Telephone Exchange Company.—Dan Austin Loomis (XIII.), Technology Chambers, Boston, Mass., student at Institute.—Forrest W. Lord (Sp.), 142 East Emerson Street, Melrose, Mass., shipper and salesman in N. & G. W. Lord Company, net seines and twines.—Harold Lord (IV.), 30 Auburn Street, Malden, Mass., engineer with Eastern Expanded Metal Company, Paddock Building, Boston, Mass.—Charles G. Loring (IV.), care Baring Bros., London, England, studying architecture in Paris.—Henry Delano Loring (I.), Whitestone, 61 21st Street, New York City, assistant superintendent of construction, Fort Tatten, N.Y., government supervision and laying out of contract work on roads, grading, walks, etc. Intends to resume study at Institute this fall.—William T. Lourie (II.), 144 West Rayen Avenue, Youngstown, Ohio, draughtsman, Carnegie Steel Company, Ohio Works.—Robert F. Luce (I.). From the Melrose (Mass.) *Free Press*, Aug. 3, 1906: "Robert F. Luce, of this city, went to Washington last week in response to a message informing him that he had received an appointment in the Harbor and Coast Survey service. Mr. Luce is a graduate from Melrose High School, and has been taking a course at Tech. He passed his civil service examination very successfully some time ago. He passed his examinations at Washington as successfully, and has been assigned to the United States vessel 'Bache,' now stationed off Little Deer Island, Rockland, Me."—William J. Lumbert (IV.), Box 287, Walpole, Mass., civil engineer, N. Y., N. H. & H. R.R.—Clifford Lynde (I.), Union Station, Oil City, Pa., rodman with Pennsylvania Railroad.—Robert J. Lyons (XIII.), Culebra, Canal Zone, Panama, mechanical draughtsman, motive power department.—James R. McClintock (XI.), 170 Broadway, New York City, engineer with Messrs. Hering & Fuller, consulting engineers.—Claude McGinnis (VIII.),

Digitized by Google

Greenville, Ill. To return as Assistant in Physics Department, M. I. T.—Richard V. McKay (VI.), East Milton, Mass. During the summer McKay accompanied his mother on a three months' trip in the British Isles and France for the benefit of Mrs. McKay's health. Sailing from New York June 16, their itinerary included: Londonderry, a tour in the northern part of Ireland to Belfast; thence Glasgow, the beautiful Scott and Rob Roy country to Edinburgh; Melrose, Leeds, Sheffield, Derby, and London; a week in Paris; then, via London, Manchester, and Liverpool, to Dublin, and a tour of the western part of Ireland; thence to Cork and Queenstown, where they sailed for Boston on September 5. They enjoyed the trip, and Mrs. McKay was much benefited.—Joseph Newall McKernan (I.), 37 Court Street, Houlton, Me., draughtsman with Bangor & Aroostook Railroad, chief engineer's office.—Herbert James Mann (II.), 751 Pinegrove Avenue, Chicago, Ill., draughting for Hammond Packing Company, Union Stock Yards.—Paul Ford Mann (IV.), care American Express Company, Paris, France, architect.—Eleanor Manning (IV.), 26 Beacon Hill Avenue, Lynn, Mass., architectural decorator.—Edward S. Manson (VI.), M. I. T., Boston, Mass., post-graduate work at M. I. T.—William E. H. Mathison (III.) is reported to have been spending the summer at the seashore at Madison, Conn.—Louis Henry Maxfield (XIII.), 627 Goodrich Avenue, Annapolis, Md., midshipman, United States Navy.—Edward Leodore Mayberry (IV.), 1054 East Ocean Avenue, Los Angeles, Cal., architectural engineer. Married to Miss Ada Stevens Phillips, Jan. 24, 1901.—Harry C. Merriam (V.), 201 East Orinon Avenue, Pueblo, Col., chemist and assaying with the American Smelting and Refining Company.—Louis Francisco Mesmer (I.), 242 Newbury Street, Boston, Mass., graduate student, M. I. T., Course I. Like many others, he "has hopes" of making further announcements.—Winthrop N. Messenger (VI.), 283 Vinton Street, Melrose Highlands, Mass., traffic work, New England Telephone and Telegraph Company.—James G. Moore (IV.), student at M. I. T., '07.—C. Burrows Morey (VIII.), 101 Depew Avenue, Buffalo, N Y., chemist, American Radiator Company, Pierce Plant.—John Missroon Morris (VI.), 527 South Main Street, Los Angeles, Cal.,

Digitized by Google

engineering, Los Angeles office of Westinghouse Electric and Manufacturing Company, investigating troubles, making engineering reports, recommendations, etc.—Harold Morse (VI.), 392 Fourth Street, Brooklyn, N.Y., with New York & New Jersey Telephone Company.—Charles W. Mowry (II.), 425 Quincy Street, Dorchester, Mass., surveyor and draughtsman with Associated Factory Mutual Fire Insurance Companies.—Harold K. Munroe (VI.), 43 Warren Avenue, Woburn Mass., with Stone & Webster, Boston, Mass.—John E. Murphy (III.), Bovey, Minn., engineer, Holman Mine, Oliver Iron Mining Company.—Samuel A. Nash (II.), 77 Toxteth Street, Brookline, Mass., salesman, Carter, Rice & Co., 246 Devonshire Street, Boston, Mass., wholesale paper jobbers.—Wallace Newberger (II.), 763 6th Street, Louisville, Ky., student in Kentucky State College.—Sherley P. Newton (V.), M. I. T., Boston, Mass., private assistant to Dr. Gill, gas and oil analysis.—H. G. Nicholas (VI.), Back Bay Post-office, Boston, Mass., Two years in Australia, '04–06. Re-entered Tech to graduate with '08. Married to Miss R. Gard, July 31, 1906.—Utar James Nicholas (VI.), 263 Newbury Street, Boston, Mass., student at M. I. T., Course VI., Junior year. "Back to Tech again, but find few familiar faces among the students."—G. Curtis Noble, Jr. (IV.), architectural draughtsman for United States government at Washington, D.C., Treasury Department.—John F. Norton (V.), 132 Woodland Road, Auburndale, Mass., Assistant in Organic Chemistry at M. I. T.—Henry Lane Oaks (Sp.), South Framingham, Mass., service inspector and tester of exchanges, New England Telephone and Telegraph Company, Boston, Mass.—Alphonsus O'Farrell (XIII.), 82 Dustin Street, Brighton, Mass., surveying, Charles River Basin Commission.—Wilfred N. Oliver (II.), 360 Eleventh Avenue, S.W., Roanoke, Va., draughtsman, Virginia Bridge and Iron Company.—Harvey B. Orcutt (I.), 235 Fourth Avenue, Phœnixville, Pa., draughtsman with Phœnix Bridge Company.—R. E. Page (II.), 79 Worcester Street, Boston, Mass., draughtsman with Factory Mutual Insurance Company's Plan Department, 31 Milk Street, Boston, Mass.—Miss Jane Boit Patten (VII.), Simmons College, Boston, Mass.—Chadwell S. Peirce (I.), 936 Hinman Avenue,

Digitized by Google

Evanston, Ill., temporarily at Bovine, S.D., pile-driving inspector, C. & N.-W. Ry., constructing the P. R., C. & N.-W. Ry.—F. S. Phelps (II.), 88 Chatham Street, Worcester, Mass., with American Steel and Wire Company.—J. Sherman Pitkin (IV.), Box 1051, New Haven, Conn., architect.—Harold C. Plummer (III.), Globe, Gila County, Ariz., assistant mining engineer with the Old Dominion Copper Mining and Smelting Company.—James H. Polhemus (III.), "New Jersey Zn Company," Franklin Furnace, N.J., surface and underground surveying and general engineering.—Edward Barker Pollister (I.), 225 West 45th Street, New York City, distribution department of the New York Edison Company, 52 Duane Street, New York City.—Clarence B. Powell (VI.), 3411 Walnut Street, Philadelphia, Pa., equipment department, Bell Telephone Company of Philadelphia, and the Delaware & Atlantic Telegraph and Telephone Company.—Oscar S. Pulman, Jr. (X.), 1791 117th Street, Cleveland, Ohio, chemist, battery and research laboratory, National Carbon Company.—Willis Ranney, whose illness necessitated his leaving the Institute last January, will return this fall to finish his work in Course I. Ranney has been assistant engineer on the C. H. & D. Ry., with headquarters at Chillicothe, Ohio.—Russell P. Raynolds (III.), 670 3d Avenue, Durango, Col., chemist, Durango Plant, American Smelting and Refining Company.—Roger Leavitt Rice (VII.), care Great Lakes Engineering Works, St. Clair, Mich., head clerk of St. Clair Plant of above corporation.—Charles D. Richardson (VI.), 48 Highland Avenue, Cambridge, Mass., Assistant in Electrical Engineering Department, M. I. T., Boston.—Edward M. Richardson (Sp.), Lime Rock, Conn.—John Allen Root (III.), Technology Chambers, Boston, Assistant in Mining Department under Professor Lodge, M. I. T.—Robert J. Ross (III.), 86 Clifton Street, Belmont, Mass., mining engineer.—Edward B. Rowe (VIII.), 9 St. James Avenue, Boston, Assistant in Laboratory of Tech. Electrical Measurements, M. I. T., under Professor Laws. During vacation "Ned" was on a launch at Wolf Hill, Gloucester, Mass. It is surprising how stanch are some of our bachelors (not S.B.). It remains, however, to be seen whether one of the stanchest will not be among

Digitized by Google

the early captives.—Wiear L. Rowell (II.), Swampscott, Mass., experimental engineer and draughtsman, B. F. Sturtevant Company, Hyde Park, Mass.—Guy H. Ruggles (III.), Great Falls, Mont., care of B. & M. Co., "gas analyst, Boston & Montana Consolidated Cu and Ag Mining Co." We know Guy is hustling by the way he abbreviates the name.—Mary J. Ruggles (V.), 65 Wendell Street, Cambridge, Mass., student at Radcliffe, taking general work.—Nestor Manuel Seiglie (I.), Sagua la Grande, Cuba.—Charles Henry Shapleigh (II.), Vicksburg, Miss., civil engineer, New Orleans & N. E. R.R., Vicksburg, Miss.—Ray Elmer Shedd (I.), 212 Highland Avenue, Somerville, Mass., student at M. I. T.—William A. Sheldon (III.), care Taylor Park Mining Company, Dorchester, Col. "Bill" is up in the mountains at 13,000 feet altitude, and is hard at work as mining engineer, assayer, mine surveyor. Does some outside surveying over the mountain, and is general utility man, fixing up things in the way of broken machinery, etc.—Ralph Shurtleff (II.), 57 Prospect Street, Taunton, Mass., construction of motor boats and marine gas engines.—John E. Simmons (X.), 34 South Central Avenue, Wollaston, Mass., charge of washing powder department, Swift Soap Works, Somerville, Mass.—Guy C. Simpson (I.), 451 Wilson Avenue, Columbus, Ohio, assistant on engineering corps, Pennsylvania Railway Company Lines West of Pittsburg, S.W. System.—Harold C. Smith (XIII.), 3 Abbott Street, Newton Upper Falls, Mass., apprentice in mechanical engineering at Saco & Pettey's, manufacturers of cotton machinery.—Lemuel D. Smith (XIII.), 119 Post Street, Spokane, Wash., pressman in "The Winthrop Press" (temporarily).—Miss Lillie C. Smith (XII., '01 and '06), 163 Huntington Avenue, Boston, Mass., teacher in Brookline High School.—Walter Smith (IV.), Annapolis, Md., midshipman, United States Navy.—Ralph N. Soule (VI.), 215 West 23d Street, New York City, traffic department, New York Telephone Company.—Walter C. Spencer (I.), 162 Peace Street, Providence, R.I., with the American Locomotive Company.—Philip B. Stanley (II.), 411 McNair Street, Wilkinsburg, Pa., apprenticeship course in Westinghouse Electric and Manufacturing Company.—Everett C. Stanton (VI.), Box 367, Sharon, Mass.,

Digitized by Google

student course, engineering department of New England Telephone and Telegraph Company, Boston, Mass.—E. T. Steel (VI.) is reported to have gone to Porto Rico for Stone & Webster.—Albert L. Stephens (III.), Aguascalientes, Ags., Mex., with American Smelting and Refining Company.—C. C. Stevens (X.), Ritzville, Wash.—C. H. Sutherland, (Sp.), Westport, Cal., assistant superintendent, with California Lumber Company.—Arthur Wilbour Talbot (VI.), 3 Nottingham Street, Dorchester, Mass.—F. A. Tarr (II.), 75 Thorndike Street, Cambridge, Mass., with the Vacuum Process Company.—Allyn C. Taylor (II.), 6700 North 8th Street, Oak Lane, Philadelphia, Pa., distribution department, United Gas Improvement Company.—De Witt M. Taylor (II.), Blairsville, Pa., master mechanic, erecting the Josephine Furnace of the Josephine Furnace and Coke Company, Josephine, Pa. Married June 6, 1906, to Miss Dorothy H. Hersome.—Wendell P. Terrell (II.), 73 South Elm Street, Lynn, Mass., draughtsman, General Electric Company, Lynn, Mass. Expects to leave soon to teach in the Prairie View State Normal and Industrial Institute, Texas.—K. E. Terry, Jr. (VI.), 714 Washington Street, Dorchester, Mass., with the American Tool and Machine Company, Boston, Mass.—Arthur S. Thomas (II.), 809 Continental Trust Building, Baltimore, Md., mechanical engineer with Consolidated Cotton Duck Company.—Louis A. Thompson (VI.), care Pensacola Electric Company, Pensacola, Fla.—Fred B. Thurber (Sp.), 229 Waterman Street, Providence, R.I., salesman with Tilden Thurber Company, retail jewellers and silversmiths.—Percy E. Tillson (VI.), 6700 North 8th Street, Oak Lane, Philadelphia, Pa., with engineering department, Bell Telephone Company.—Walter Haywood Trask (II.), Room 1229, Grand Central Station, New York City, inspector steam engineering department, N. Y. C. & H. R. R.R.—Louis H. Tripp (II.), 42 Rutland Square, Boston, Mass., with Professor S. H. Woodbridge.—Arthur T. Trowbridge, (II.), 555 Warren Street, Hudson, N.Y., draughtsman with the Gifford-Wood Company, designing ice-handling machinery for natural and manufactured ice.—Clarence E. Tucker (V.), Hyde Park Avenue, Hyde Park, Mass., in the testing laboratory of Asso-

Digitized by Google

ciated Factory Mutual Fire Insurance Company, 31 Milk Street, Boston, Mass.—Louis Tuckerman (II.), 1365 Ogden Street, Denver, Col., has been with the C. H. Shaw Pneumatic Tool Company of Denver as draughtsman. Is now in same capacity with the C. F. & I.—Henry M. Udale (II.), Tech Chambers, Boston, Mass., student at M. I. T.—William Martin Van Amringe (X.), 29 Crawford Street, Boston, Mass., real estate.—F. J. Van Hook (I.), care Big Four Railroad Company, Wabash, Ind., assistant engineer, maintenance of way, Michigan Division, C., C., C. & St. L. Ry.—W. G. Waldo, formerly '06, has been with the Cincinnati & Northern Traction Company for about five months since leaving Tech. He will return this fall to complete his course.—William F. Walker (II.), 167 Andover Street, Lawrence, Mass., office of the Wood Worsted Mills of Lawrence. Walker is to be numbered among the infinitely happy.—William J. Walsh (X.), 5 Woodville Street, Roxbury, Mass., Assistant in Heat Measurements, M. I. T.—Arthur Percy Watt (III.), 176 Forest Street, Winchester, Mass., Assistant in Mining Department, M. I. T.—Lawrence Burns Webster (VII.), Marion, Ind., graduated from Harvard 1906. Is now travelling in Europe. Not as yet engaged in business.—Arthur Edward Wells (III.), A. V. Smelter, Leadville, Col., metallurgical chemist, with American Smelting and Refining Company.—Charles F. W. Wetterer (IV.). From the Gloucester (Mass.) *Times* of June 12, 1906: "The many friends of Charles F. W. Wetterer, who graduated from the Massachusetts Institute of Technology last Wednesday, will be pleased to learn that he has been appointed to a lucrative position with the Ponce Electrical Company at Ponce, Porto Rico. Mr. Wetterer graduated among the high liners of his class, and was class historian and very popular among his associates. He will sail from New York June 30." Later by direct report from "Wet": care Dallas Electric Company, Dallas, Tex., acting as secretary to the district manager of Stone & Webster's Texas properties. Married July 10, 1906, to Miss Elizabeth Paten, of Roxbury, Mass. "Wet" says of Texas: "A growing country and lots doing in a business line down here, but there's too much summer to suit me. Six months of d— hot weather."—George F. White (V.), Franklin

Digitized by Google

Park, Mass., Assistant in Analytical Chemistry at M. I. T.—N. A. White (XIII.) ventured out into the wilds of Minnesota during the summer, but is reported to have returned home safely. Later we have his address as 1515 Girard Avenue, Philadelphia, Pa., shipfitter, William Cramp & Sons Ship and Engine Building Company, Philadelphia, Pa.—Herbert S. Whiting (VI)., 274 Seaver Street, Roxbury, Mass., with American Telephone and Telegraph Company, 125 Milk Street, Boston, Mass.—Bernard F. Whittaker (Sp.), 10 Front Street, Worcester, Mass., chemist with Hall & Lyons Company, Worcester, Mass.—Malcolm G. Wight (I.), 334 Washington Street, Wellesley Hills, Mass., special student at M. I. T.—C. R. Wilfley (III.), Maryville, Mo., for the summer assistant city engineer; going West later. His friends will be glad to know that he has been enjoying a lot of outdoor life, and is in much better health.—H. S. Wilkins (II.), M. I. T., Boston, Mass., student at M. I. T., '07.—Frederick H. Willcox (V.), M. I. T., Boston, Mass., Assistant in Analytical Chemistry, M. I. T.—Herbert L. Williams (III.), 110 South Mill Street, Lead, S. D., with Globe Gold Mining Company (see letter below).—James R. Williams (II.), 196 South 18th Street, Quincy, Ill., in office of Quincy Engine Works.—Edward L. Wilson (II.), 904 East Capitol Street, Washington, D.C., heating and ventilating draughtsman, with S. H. Woodbridge, on United States National Museum.—J. Cazeneuve Wilson (VI.), Pass Christian, Miss., electrician. At present he is in Denver, Col.—Dana W. Wood (I.), 35 Myrtle Street, Belmont, Mass., temporary work: installation of water supply system for a hospital in Gravenhurst, Canada, and stadia surveys on same. Will be another year at M. I. T.—Ira V. Woodbury (III.), 72 Lothrop Street, Beverly, Mass., corporation secretary with Seymour & Jackson, shoe manufacturers, Lynn, Mass.—Julian M. Wright (XIII.), 10 Charles Street, Boston, Mass., student at M. I. T.—William H. P. Wright (XIII.), 172 Jackson Street, Lawrence, Mass. We are sorry to learn that Wright is not working at present on account of severe illness.—Walter B. Wyman (Sp.), Crown Point, Essex Co., N.Y., assistant cashier with J. W. Wyman, banker.—G. Chester Young (II.), 10 Rawson Street, Dorchester, Mass., assistant superintendent in bridge

Digitized by Google

foundation work for Atlantic Construction Company.—Herminio Yrizarry (I.), Box 82, San German, Porto Rico, surveying private land at San German, P.R.

The secretaries will be glad to furnish information concerning the location of '06 men. We would like to be advised of any corrections or any changes in addresses. In every case it is necessary to give full addresses, since we are not always likely to guess correctly in which State and town the correspondent resides. Please do not abbreviate names of companies.

Now that "Wet" has deserted the ranks of 1906 bachelors, there are several signs of weakening among our sternest warriors. We shall not mention any names, but advise our classmates to watch these columns closely.

During August there was quite a little reunion of '06 men at Columbus, Ohio. Davenport, Farwell, Lincoln, Bartlett, and Hinckley, with Ranney, formerly '06, were the principals. Davenport, Farwell, and Bartlett are with the Pennsylvania at Pittsburg. Lincoln is now on tunnel work at New York. Hinckley is in Columbus, and Ranney expects to finish Tech this year.

Eliot (VI.) has been spending the summer at Eastern Point, Gloucester. During the course of the season he gave a house party, which Banash (VIII.), Rowe (VIII.), Root (III.), and Heywood (III.) attended. In early September Eliot started for Tacoma, Wash., to begin work. Last wire from him announces his latest haven of refuge as Post Falls, Ida. This is far from the maddening girls with a vengeance.

D. C. Davis (VI.), H. W. Dean (VI.), and P. E. Tillson (VI.) are all with the same company in Philadelphia. These three men, and A. C. Taylor (II.) of another company, are living together. Davis reports gay times. "No lack of Tech spirit." That's the way to get together.

We have heard from "Wee" Williams:—

LEAD, SOUTH DAKOTA, 110 South Mill Street, care of N. D. Pool, Sept. 13, 1906.

My dear Angelo,—I was in Chicago with Herbert Mann when his notice from you arrived, and it reminded me that I had intended writing you for

Digitized by Google

a long time, but, as I always do, had kept putting it off. Having a little time on my hands now, I think I'll drop you a line or two, and let you know where I am, what I've been doing, and how things are going. . . .

"Wee" surprises us by writing that he is not going to Mexico, but has been out at Sault Sainte Marie, Ontario, Canada, with the Algoma Steel Company, and is now located in the Black Hills with the Globe Gold Mining Company. Continuing, he writes:—

I stopped in Chicago on my way out, and spent a week with friends there, and arrived in Deadwood last Sunday. Lead, about three miles away, is, however, nearer the mine, so I'm living here, and I like the country very much. I haven't started in work yet, so can't tell how I shall like that, but I'm looking forward to it keenly. I saw Fay Libby up in Canada, and have heard from George Henderson and Guy Ruggles. All were happy and prosperous at last accounts. I should like to hear from you, and find out how things are going without '06 at the old school. How do you like your job? In some ways I wish I were with you, but I think the West is for mine, after all. I wish you would send me a "Register of Graduates," so I can find out whether any old Tech men are employed out here. Do you know if Mr. Batchellor, who told the Mechanical Engineering Society last winter about the Homestake works, is here? I haven't been able to locate him. . . .

I only wish I could drop in at some of the [class] dinners. Remember me to all the boys who come back, and write to me.

News, boys, news! That is what we want, and you must help us get it. Two men out of 550 cannot hope to follow up all the interesting little episodes which go to make up the lives of all '06 men. Send us any little bit of information about yourself or any of your classmates that you can rake or scrape together, and we will be only too glad to print it. It does not make a bit of difference what you did or didn't do at M. I. T. We are all in the same boat now, and, if we want to set any kind of an example in class spirit and good fellowship, little things like this must not be overlooked. Send us the news, and keep on sending it whenever there's anything to write about.

Digitized by Google

IN MEMORIAM

George Francis Clay (XIII.), died of pneumonia July 31, 1904.

Perley Kennison Dodge (VI.), killed by electric shock March 19, 1906, in Beverly, Mass.

Frank Calvin Farnsworth (IV.), died June 1, 1905.

Alfred Dalton Gere (Sp.), drowned in Connecticut River, while a Junior at Dartmouth, Sept. 22, 1905.

Addison Haynes Nordyke, Jr. (Sp.), died of typhoid fever Sept. 25, 1905, at his home in Indianapolis, Ind.

Samuel Rogers Spinney (VI.), (II.).

Digitized by Google

Digitized by Google

INDEX TO VOLUME VIII

PAGE

Alumni Association of the M. I. T., Annual Meeting of the . . 36
Alumni Association of the M. I. T., New Office of 444
Alumni Representation in College Government, L. P. Wood, 301
Alumni Representation, Some Aspects of, H. W. Tyler 28
Appointments 314
Apprenticeship for Business Responsibility, I. W. Litchfield . 395
Architecture, Department of 78, 215, 320
Athletics 105, 230, 341, 441
Atkinson, Edward, Joseph P. Gray 162
Batchelder, J. L., Jr., Memoirs of T. Spencer and F. T. Towne . 292
Bigelow, John, Jr., The Uses of Foreign Languages 7
Biology, Department of 321
Book Reviews 296, 394
Bullard Memorial Window, The 299
Cabot Medals 343
Chemistry and Chemical Engineering, Department of . . 85, 217, 321, 435
Cincinnati, M. I. T. Club of 118, 237, 347
Civil Engineering, Department of 74, 431
Class Secretaries, Association of 113
Classes, The 101, 223, 335
Cleveland, Technology Club of 239, 349
Clubs and Societies 100, 226, 336, 443
Connecticut Valley Association of the M. I. T. 446
Convocations 100, 336
Corporation Notes 68, 209, 311, 424
Department Notes 74, 213, 318, 431
Drinking Fountain, The 443
Edison, Thomas A., on the M. I. T. 350
Editorials 206
Electrical Engineering, Department of 80, 219, 438
England, Paul W., Memoir of Theodore Spencer 292
English, Department of 325
Faculty Notes 209, 312, 427
Fellowships 315, 431

Digitized by Google

PAGE

Field Day 107, 441
Fish, F. P., The Technology Fund 186
Foreign Languages, The Uses of, John Bigelow, Jr. 7
Gate, Class of '81 412
General Institute News 68, 209, 311, 424
General Studies 211
Geology, Department of 82, 325, 438
German Universities, Institute Graduates at 197
Graduate Scholars 71
Graduates, The 109, 232, 344, 444
Gray, Joseph P., Edward Atkinson 162
Gymnasium, The New, Winfield C. Towne 414
Hartford, Conn., Technology Club of 118, 238, 348
Indian Dispossessed, The, Seth K. Humphrey 298
Institute Committee 100
Jackson, Dugald C. 409
Junior Week 328
Kommers, The 228, 340
Lewis and Clark Exposition 71
Litchfield, I. W., An Apprenticeship for Business Responsibility . . 395
Lowell Institute, Programme for 1906–07 4
Mathematics, Department of 222, 324, 439
Mechanical Drawing for Technical Students, Charles L. Adams . . . 394
Mechanical Engineering, Department of 77, 213, 433
Merrimack Valley, Technology Club of 236
Mining Engineering and Metallurgy, Department of . . . 214, 318, 434
Minnesota Alumni Association 239
Modern Languages, Department of 89, 326
Munroe, J. P., Standards to be placed before the Young Engineer, 402
Naval Architecture, Department of 89
Necrology 82, 139, 250, 258, 275, 292, 352, 385, 451, 478, 505
New Bedford, Technology Class of 118, 237, 347, 447
News from the Classes 121, 241, 351, 450
New York, Technology Club of 234, 446
Nominees for Corporation, List of 109
Northern Ohio, Technology Club of 239, 349
North-western Alumni Association 232, 344, 445
Passano, L. M., Technology: A Poem 159

Digitized by Google

PAGE
Philadelphia, Technology Club of 234
Physics, Department of 83
Presidency, The 424
President and Treasurer, Extracts from Report of 90
Pritchett, The Administration of President 1
Publications 70, 210
Registration 426
Rhode Island, Technology Club of 447
Rocky Mountain Technology Club 446
Rotch Prize, The 316
Seal of the Institute 1
Secretary of the Institute 425
Sedgwick, William T., Festschrift Celebration 316
Senior Week 232, 330
SKINNER, T. H., A Suggested Plan for a Larger Utilization of the Present Property of the Institute 166
Snow, W. B., Review of Adams's *Mechanical Drawing for Technical Students* 394
Societies, Professional 100, 226, 336
SPENCER, THEODORE, John L. Batchelder, Jr., and Paul W. England, 292
STANDARDS TO BE PLACED BEFORE THE YOUNG ENGINEER, THE, James Phinney Munroe 402
SUGGESTED PLAN FOR A LARGER UTILIZATION OF THE PRESENT PROPERTY OF THE M. I. T., Theodore H. Skinner 166
Summer Courses 212
Talbot, H. P., Review of Pritchett's *What is Religion?* 296
Tech Field 342
TECHNOLOGY: A Poem, L. M. Passano 159
Technology Club, The 119, 240, 445
TECHNOLOGY FUND, THE, F. P. Fish 186
Tech Show, The "Freshman" 229, 328, 339
Tech Union 104
TOWNE, FREDERICK TALMADGE, John L. Batchelder, Jr. 293
TOWNE, WINFIELD C., The New Gymnasium 414
TYLER, H. W., Some Aspects of Alumni Representation 28
TYLER, H. W., The Federal Polytechnic at Zürich 171
UNDERGRADUATES, THE 100, 223, 328, 440
Vacation Notes 428

Digitized by Google

PAGE

Vermont Technology Association 239, 348
Washington Society of the M. I. T. 116, 235, 345
What is Religion? Henry S. Pritchett 296
Women of the M. I. T., Association of 119
WOOD, LEONARD P., Alumni Representation in College Government, 301
WOODS, HENRY TYLER 294
Young Men's Christian Association 103, 229, 441
ZÜRICH, THE FEDERAL POLYTECHNIC AT, H. W. Tyler 171

Digitized by Google

ALPHABETICAL LIST OF ADVERTISERS

	PAGE
American School of Correspondence	11
Atlantic Works, The	1
Barrus, George H.	2
Buffalo Testing Laboratory	2
Cabot, Samuel	2
Chicago and Alton Railway	13
Chase, Harvey & Company	3
Child, Stephen	3
Davis Foundry Company	4
Dean & Main	3
Draper Company	Cover
Ellis, Geo. H. Co.	16
Gowing, E. H.	3
Harrison Safety Boiler Works	Cover
Hub Engraving Co.	13
Knapp, F. B.	3
Little, Arthur D.	2
Mason Regulator Co., The	13
Massachusetts Institute of Technology	Cover
Merrimac Chemical Co.	4
Metcalf, Leonard	3
Morse, Andrew Jr. & Son, Inc.	16
Morse Twist Drill and Machine Co.	13
Richards, Ellen H.	3
Richards, Robert H.	3
Ricker, George A.	2
Samson Cordage Works	1
Simplex Electrical Co.	6
Smith, S. Morgan, Company	1
Star Brass Manufacturing Company	16
Stone & Webster	4
Sturtevant, B. F., Company	6
Taintor, Giles	3
Tech, The	15
"Technique, 1907"	15
Technology Review, The	10
Todd, Thomas	16
Turner, E. K.	3
Walworth Manufacturing Company	5

Digitized by Google

The Technology Review

A QUARTERLY MAGAZINE
DEVOTED TO THE
INTERESTS OF THE
MASSACHUSETTS INSTITUTE
OF TECHNOLOGY

AND

PUBLISHED BY THE ASSOCIATION OF CLASS SECRETARIES

83 NEWBURY STREET, BOSTON

The Review aims to develop closer relations among Institute men and to stimulate their interest in the work of the College.

It is in no sense an engineering magazine, but deals broadly with the problems of Technological Education and the responsibilities of the professional man.

THE REVIEW is published during January, April, July, and October. Communications should be addressed to THE TECHNOLOGY REVIEW, 83 Newbury Street, Boston, Mass.

SUBSCRIPTION, ONE DOLLAR A YEAR
SINGLE COPIES, THIRTY-FIVE CENTS

Volumes I., III., IV., and V., finely bound in half morocco, are ready for delivery at $2.00 each, or will be exchanged for unbound sets, provided they are in good condition, at $1.00 each. (If sent by mail, 30 cents extra.) Volumes VI. and VII. at $2.25 each, or they will be exchanged for unbound sets at $1.25 each.

Digitized by Google

Technical Instruction by Mail

The American School of Correspondence, Chicago, formerly of Boston, offers instruction by correspondence in Electrical, Mechanical, Stationary, Marine, Locomotive, Civil, Railroad, Structural, Municipal, and Hydraulic

ENGINEERING

Architecture, Structural Drafting, Mechanical Drawing, Perspective Drawing, Telephony, Telegraphy, Navigation, Heat, Ventilation, Plumbing, Sheet Metal Pattern Drafting, and Textile Manufacturing, including Cotton, Wool and Worsted, Knitting, Finishing, Chemistry and Dyeing; also

COLLEGE PREPARATORY COURSES

(*fitting for entrance to Engineering Technical Schools*)

The instruction offers those who have not the means or time to attend a resident school an opportunity for self-improvement under the guidance of thoroughly competent teachers. The instruction papers have been prepared especially for home study by men of high professional standing. Among these are

Prof. Louis Derr, Massachusetts Institute of Technology
Prof. F. B. Crocker, Columbia University
Prof. L. S. Marks, Harvard University
Prof. W. H. Lawrence, Massachusetts Institute of Technology
Prof. F. E. Turneaure, University of Wisconsin
Prof. W. S. Leland, Massachusetts Institute of Technology
Prof. Wm. Esty, Lehigh University
Prof. H. W. Gardner, Massachusetts Institute of Technology
Prof. W. L. Webb, formerly University of Pennsylvania
Prof. C. L. Griffin, formerly Pennsylvania State College
Prof. A. Marston, Iowa State College
Prof. A. E. Phillips, Armour Institute of Technology
Prof. H. E. Everett, University of Pennsylvania
D. A. Gregg, Boston

For further information and catalogue address

AMERICAN SCHOOL OF CORRESPONDENCE

CHICAGO, ILL. A. E. ZAPF (M. I. T. '95), Sec'y

Digitized by Google

Some Comments on the Review

[From the Boston *Herald*, Sunday, February 14, 1904.]

No other college periodical that comes to our table has the freshness, readableness, and fine flavor of earnestness of the *Technology Review*. Primarily, of course, the *Review* is an arena for exploitation of the ideal of the Institute of Technology, dissemination of information about it and the cultivation of loyalty; but this purpose is pursued so broadly and generously that the publication has become not only interesting, but important, to the educational world generally, and especially to all who are concerned with the development of that motive and mode of education which the Institute exists to exemplify. The value of its contents is high, and the tone throughout is lofty and generous.

BOSTON, MASS.

. . . "I consider the REVIEW one of the very best things of its kind and most useful to the Institute."

Professor ———.

DENVER, COL.

"The TECHNOLOGY REVIEW is all right. Count on me as a subscriber for life. Every man at the M.I.T. should have it."

———, '87.

SAN JUAN, P.R.

. . . "I find it very interesting, and the only way I can keep track of what is doing in and for the Institute."

———, '89.

HACKENSACK, N.J.

"THE REVIEW is A1, and I congratulate the Committee on their success. I will try to get my share of new subscribers."

———, '91.

So. BETHLEHEM, PA.

"I hardly know what I should do without it. The REVIEW deserves the best possible financial support, just as it does the personal and collective thanks of all our alumni."

———, '93.

WILKINSBURG, PA.

. . . "I should be sorry to miss a single number of the REVIEW."

———, '98.

NEW YORK, N.Y.

"No Tech man should consider a year well spent unless he has paid his next year's subscription to the REVIEW."

———, '98.

PORTLAND, OR.

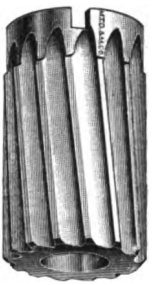
. . . "THE TECHNOLOGY REVIEW is a credit to Tech and to the Association of Class Secretaries, and every alumnus should take it."

———, '04.

Digitized by Google

Morse Twist Drill and Machine Co.

NEW BEDFORD, MASS., U.S.A.



Makers of

INCREASE AND CONSTANT ANGLE
TWIST DRILLS, REAMERS, CHUCKS,
MILLING CUTTERS, TAPS, DIES,
MACHINERY AND MACHINISTS' TOOLS

THE MASON REGULATOR CO.

INCORPORATED 1883

STANDARD STEAM SPECIALTIES

Reducing Valves, Damper Regulators, Pump Governors,
and Automatic Appliances of all descriptions for the regulation and control of Steam, Water, and Air Pressures.

158 SUMMER STREET, COR. FEDERAL STREET, BOSTON, MASSACHUSETTS
WORKS AT DORCHESTER LOWER MILLS, MASS.

CHICAGO & ALTON RAILWAY

"COMING AND GOING"
"THE ONLY WAY"
BETWEEN
CHICAGO
ST. LOUIS
KANSAS CITY
AND PEORIA

GEO. J. CHARLTON, Gen. Pass. Agent, Chicago, Ill

Hub
Engraving
Company

Photo-Engravings
Half-Tones
Relief Plates

173
Summer St.,
BOSTON

Digitized by Google

The Technology Review

Contents of Volume VI.

Volume VI. January, 1904 Number 1

FRONTISPIECE: Laboratory of Dynamo electric Machinery, looking South.

THE AUGUSTUS LOWELL LABORATORIES OF ELECTRICAL ENGINEERING Harry E. Clifford, '86

THE COURSE IN GENERAL STUDIES Arthur A. Noyes, '86

THE JUNE ALUMNI REUNION Henry S. Pritchett

THE OBSERVANCE OF COMMENCEMENT BY THE ALUMNI Frederick H. Fay, '93

THE TREASURY DEPARTMENT Julian E. Woodwell, '96

LOWELL INSTITUTE SCHOOL FOR INDUSTRIAL FOREMEN Charles F. Park, '92

EDITORIALS:

THE INSTITUTE:
Corporation Notes.— Registration Notes.— Changes in Entrance Requirements.— Publications.— General A. P. Rockwell.— Conference of Teachers.—The British Education Commission.— General Notes.— Department Notes.— Society of Arts.

THE UNDERGRADUATES:
Class and Other Officers.— Convocations.— President Pritchett to the Freshmen.— The Honor System.— Athletics.— Dinners and Receptions.— Notes.

THE GRADUATES:
Annual Meeting of the M. I. T. A. A.— The Northwestern Association of the M. I. T.— The Technology Club of New York.— The Washington Society of the M. I. T.— Association of Class Secretaries of the M. I. T.— The Technology Club.— News from the Classes.

BOOK REVIEWS:
Williams's "High School Chemistry in its Relation to the Work of a College."—Boutelle's "Man of Mount Moriah."— Elson's "Woman's Work in Music."

Volume VI. July, 1904 Number 3

FRONTISPIECE: The Rogers Building.

THE FIRST TECH REUNION.

THE PROPOSED COMBINATION WITH HARVARD.

THE GORDON McKAY ENDOWMENT.

THE TECHNOLOGY FUND.

THE INSTITUTE:
Corporation Notes.— Faculty Notes.— Entrance Examinations.— Department Notes.— Society of Arts.

THE UNDERGRADUATES:
Junior Week.— Professional Societies.—Class Organizations and Clubs.— The Annual Meet.— The Dartmouth Meet.— Amherst Meet — Notes.

THE GRADUATES:
The Washington Society of the M. I. T.— The Technology Club of the Merrimack Valley.— The Tech Society of Philadelphia.— The Annapolis Society of the M. I. T.— The Connecticut Valley Association, M. I. T.— News from the Classes.

NECROLOGY: Julian Abbot Kebler, '78.

BOOK REVIEWS:
Dewey's "Employees and Wages."— Pearson's "Life of John A. Andrew, Governor of Massachusetts, 1861–1865."

Volume VI. April, 1904 Number 2

FRONTISPIECE: The Tennis and Racquet Club, Boston, Mass.

THE TENNIS AND RACQUET CLUB, BOSTON, MASS. Francis W. Chandler

A LABORATORY COURSE IN INDUSTRIAL CHEMISTRY William H. Walker

THE JUNE REUNION H. W. Tyler, '84

THE PROPOSED HARVARD–TECHNOLOGY MERGER.

THE COURSE IN GENERAL STUDIES.

THE INSTITUTE:
The Corporation.— General Alfred P. Rockwell.— Summer Courses.— Summer School of Mining.— Exhibit at St. Louis.— Notable Meetings.— Reception to Mrs. William Barton Rogers.— General Notes.— Department Notes.

THE UNDERGRADUATES:
The Tech Show.— Professional Societies.— Class Organizations and Clubs.— Y. M. C. A. Meeting.— The Honor System — Senior Election.— The Tech Hop.— Freshman Battalion Review.—The Library.—Athletics.

THE GRADUATES:
The North-western Association of the M. I. T.— The Technology Club of New York.— Washington Society of the M. I. T.— The Technology Club of Cincinnati.— The Technology Club of the Merrimack Valley.— Technology Men of Montana.— The Association of the Women of the M. I. T.— Association of Class Secretaries of the M I. T.— The Technology Club.— Communication.— News from the Classes.

BOOK REVIEWS:
Richard's "Ore Dressing."— Munroe's "Adventures of an Army Nurse."

Volume VI. October, 1904 Number 4

FRONTISPIECE: Bust of William Barton Rogers by T. H. Bartlett.

WILLIAM BARTON ROGERS James P. Munroe

ADDRESS AT THE CASE SCHOOL OF APPLIED SCIENCE John R. Freeman

FREDERIC FIELD BULLARD (The Man) Gelett Burgess

FREDERIC FIELD BULLARD (The Musician) Leo R. Lewis

THE TECHNOLOGY FUND.

THE BUREAU OF STANDARDS Albert S. Merrill

THE INSTITUTE:
Corporation Notes.— The New Year.— Faculty Notes.— Summer Courses.— Department Notes.

THE GRADUATES:
Alumni Association of the M. I. T.— Reunion Expenses. – Reunion Stunt Prize.— Washington Society of the M. I. T.— The Tech Society of Philadelphia.— News from the Classes.

NECROLOGY: Jerome Sondericker.— Kilburn Smith Sweet.

BOOK REVIEWS:
"The Institute."—"The Tech."—"Technique," 1905.

Digitized by Google

THE TECH

PUBLISHED EVERY MONDAY, WEDNESDAY, AND FRIDAY DURING THE COLLEGE YEAR BY STUDENTS OF THE MASSACHUSETTS INSTITUTE OF TECHNOLOGY

Alumni desiring to keep in touch with their Alma Mater should read *The Tech*

Gives all the Technology news, covering not only undergraduate activities, but all matters connected in any way with the Institute, such as alumni news, the question of future location, etc. Alumni are especially requested to inform *The Tech* of their movements.

87 ISSUES, $1.50 PER YEAR

ERLE F. WHITNEY, '07
Editor-in-chief

R. W. PARLIN, '07
Business Manager

TECHNIQUE, 1908

Massachusetts Institute of Technology
Boston, Mass.

DEAR SIRS:

Please send me upon publication_____ __copies of TECHNIQUE, 1908.

Yours truly,

COPIES { $2.40, express prepaid
$2.00, express collect

HARRY A. RAPELEY,
Editor-in-chief.

WILLIAM B. GIVEN, JR.,
Business Manager.

Digitized by Google

Star Brass Manufacturing Company

MANUFACTURERS OF

EXTRA HEAVY RENEWABLE SEAT GLOBE, ANGLE, CROSS, CHECK, Y, AND BLOW-OFF VALVES

Warranted not to leak on high pressures. All parts renewable

All valves tested at 1,000 lbs., cold water

ALSO POP SAFETY VALVES AND NON-CORROSIVE STEAM GAGES

MAIN OFFICE AND WORKS

108–114 EAST DEDHAM STREET . BOSTON, MASS.

ANDREW J. MORSE & SON, Inc.,

221 HIGH STREET, BOSTON, MASS.

Diving Apparatus,
Fire Department Supplies,
Morse Monitor Nozzle.

CABLE ADDRESS, "Jamorse,"
A, B, C (4th edition), Lieber's, A1, and private code.

14 BEACON STREET . BOSTON, MASS.

THOMAS TODD, PRINTER

TELEPHONE 601 HAYMARKET

GEO. H. ELLIS CO., *Printers*

NO. 272 CONGRESS STREET, BOSTON, MASSACHUSETTS

ILLUSTRATING, PRINTING, AND BINDING OF MAGAZINES, BOOKS, CATALOGUES, PAMPHLETS, ALSO JOB PRINTING, LAW, RAILROAD, AND MERCANTILE WORK *Telephone, 1549 Main*

Digitized by Google

We sell

COTTON MACHINERY IMPROVEMENTS

For Spinning
Spooling
Warping
Twisting
Chain-dyeing
and Weaving

DRAPER COMPANY

Hopedale, Mass.

WILLIAM F. DRAPER, *President*
GEORGE A. DRAPER, *Treasurer*, M. I. T., '76
EBEN S. DRAPER, *Agent*, M. I. T., '78
GEORGE OTIS DRAPER, *Secretary*, M. I. T., '87

Digitized by Google

Burning too much coal?
Want more steam?
Troubled with boiler scale?

We have helped many people to save coal and to get more steam out of their boilers — incidentally saving them thousands of dollars — by providing the means for keeping scale out of their boilers.

One concern is saving $20,000 a year on an installation costing less than $5,000.

Our Cochrane Feed-water Heaters and Purifiers, in addition to their other advantages, will materially purify the feed water, taking out some scale-forming impurities and in most cases keeping boilers practically free from scale. Where there are sulphates present (these cannot be precipitated at the temperature of exhaust steam), we recommend our Purifying Systems, which we guarantee will prevent hard scale from forming in the boilers.

We also advocate these Systems when there are large quantities of carbonates, mud, or other soft scale-forming matter in the boiler feed supply.

We make the condition of the boilers the measure of efficiency of our apparatus.

If you are troubled with scale, send for our Heater and Purifying System catalogues.

HARRISON SAFETY BOILER WORKS

3192 N. 17th STREET PHILADELPHIA, PA.

Digitized by Google

Digitized by Google

Digitized by Google

Digitized by Google

Digitized by Google